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Balloon Tire Preëminent

WITH the advent of the balloon tire many dealers believed that at last their prayer had been answered for a tire that would not last too long. Their hope of a more frequent turn over of stock was certainly raised by the first two-ply thin wall low pressure casings that were put on the market. The tires were indeed long on speed and comfort, but quite short on mileage. Manufacturers, however, soon sensed the need of something more substantial if low pressure tires were to become popular, and the rapidly increasing demand for the more durable multi-ply casings in balloon type speaks for itself. But while dealers may not sell tires as often as they had hoped, they will get more for each unit, and have more satisfied customers. A good selling point, by the way, which is seldom stressed is that balloons, if correctly built, should give not only as much but even better mileage than high-pressures because they get much less heated in service; and it is needless to emphasize the deteriorating effect of heat on a flexing casing.

After Restriction —What?

PROBABLY but few proponents of restricted output of crude rubber contemplated permanent governmental control when originally they urged price regulation. When the Stevenson Restriction Scheme was broached the chief argument for it was that it was the only practicable plan of many proposed to afford needed revenue for the Federated Malay States,—a fair contention, as such an exigency then confronted the colonial government; and which would save the plantation industry, admittedly menaced with profitless prices for its product. Quasi-official assurance was given buyers that not only would no undue advantage be taken in regard to prices, the sole object sought being a rational return for labor and investment, but that as soon as normal conditions returned the artificial support would then be gradually withdrawn and the temporarily buttressed planting industry would be allowed to adjust itself to the ordinary course of trade.

Sufficient time has elapsed—three and a half years—since the measure became operative to fairly assess the benefits and drawbacks of restriction. It has achieved its main purpose, increasing the profits of producers, although speculators have doubtless reaped more advantage than rubber growers; it has eased the market of surplus stocks; it has encouraged better care of estates and afforded an incentive to extend planted areas, although in the latter respect there has been disappointment. Faced with a penalty, should they market more than their allocation of "standard production," growers could scarcely be expected to enthuse over new plantings which might only add to undisposable stocks, even though prices be sustained above the "knock-down" minimum.

Despite its temporary success, restriction is regarded by impartial critics as an economic blunder, inasmuch as it aims to defeat the law of supply and demand; a measure repressing productive enterprise; an incitement to governmental control of other raw materials; and a resentment-rousing device that carries within it the seeds of its own destruction. How the latter may be accomplished is already foreshadowed in the rising tide of agitation for considerable American control of raw rubber at its source.

How far that movement shall carry itself is a question which may be largely determined by the planters and their government.

Justly reputed as farsighted traders, the British doubtless realize as well as the Americans that sooner or later something better must supplant restriction. What shall it be? Perhaps an accord in which reasonable regard shall be shown those who buy seven-tenths of the planters' product, and who might, unless some conciliatory policy be pursued, easily become aggressive rivals instead of contented customers. Herein is a problem to which resourceful leaders in British governmental and industrial circles would do well to address themselves, and the solution of which might be commonsense Anglo-American cooperation that would for a long period not only guarantee an uncurbed supply of rubber, but that would also stabilize prices at figures concededly fair to producers and purchasers, while stimulating trade and promoting international good feeling.

Federal Aid in Rubber Planting

THREE farmers' relief measures, said to have Administration support, are being urged for passage in Congress. Two would supply direct financial aid and the other would facilitate cooperative marketing. The Tincher Bill would provide $100,000,000 to be loaned at low interest and on easy terms to farmers, and the Haugen Bill would set up a $375,000,000 revolving fund for price stabilization. The object of the measures, it is stated, is "to place agriculture on a parity with manufacturing," which has the advantage of a protective tariff.

All of this is in addition to the relief already extended to the farming interests through the Federal Farm Loan Act of July 17, 1916. The Act provides for twelve land-banks, the capital stock of which has been practically all subscribed for by the United States Treasury, and for privately-owned, joint-stock land banks; and both kinds of banks can make first mortgage loans on farm lands on the amortization plan only for periods not exceeding 34½ years and at 5½ per cent. Tax exempt bonds with such collateral all sell above par.

While conceding the advisability of encouraging the raising of the country's foodstuffs, may it not be fairly asked, should not the Government which displays such great solicitude for the farmers at home also take under its aegis other nationals and help them to develop abroad a horticultural industry almost as vital as farming to all Americans, namely, rubber growing? The arguments that apply in one case may be used with equal cogency in the other; and certainly means could be devised to adequately safeguard public funds used for American planting operations abroad as well as at home.

In this connection it is interesting to note how the British Government has aided the raising of some staple commodities overseas. Its concern for rubber growers is a familiar story; but its aid to cotton growers is less familiar, at least to Americans. Directly and indirectly, as through the agency of the British Cotton Growing Association, organized 24 years ago, "to protect itself against the vicissitudes of the American crop", the Government has developed cotton growing in India, Africa, Australia, and the West Indies, to such an extent that the crop for the year 1924-25 totaled 6,407,788 400-lb. bales. The home government, it is stated, is also planning to underwrite a loan in 1926 for £10,000,000, largely for cotton cultivation in the Sudan, following the damming of the Blue Nile in 1925.

Americans do not need to cultivate cotton abroad, but they feel increasingly the urgency of raising rubber overseas; and it is but reasonable for them to expect the earnest counsel and early, active, and substantial aid of their government in cultivating such an indispensable raw material, at least in American-controlled territory, for an industry with an annual output of one and a quarter billion dollars. And all this is apart from the serious question of the national defense.

Should Cuba Restrict Sugar Production?

ENCOURAGED with the favorable issue of the British East Indian rubber restriction scheme, Cuban legislators plan to virtually valorize sugar and control its production. But it does not always pay to follow even a successful example. If Cuba raises the price and lessens the output of sugar, American planters will raise cane as never before; the beet sugar industry will get a great stimulus; and corn may be made to yield a potential thirty pounds to the bushel instead of the present three pounds average. Nor is Cuba's economic position as favorable as that of Ceylon or Malaya; and in sowing the wind the politicians may reap the whirlwind. Then, too, its Big Brother to the north could deal Cuba a crushing blow by simply revoking the 20 per cent reciprocity concession it has made on many imports from the Pearl of the Antilles.

NO SOONER IS THE BRITISH PLANTER ENJOYING A GOOD price for rubber when the British government begins work on a huge naval base at Singapore; and, attracted by the higher pay there, a great many coolies turn their backs on the plantations and flock to the fortifications. To make matters worse, the Admiralty declines to reduce the coolies' pay to please the planters as it needs the workers, and the empire's welfare is, of course, paramount to all else.

BY WAY OF CORRECTING A WIDESPREAD IMPRESSION, regarding the Brazilian rubber country, the National Geographic Magazine says: "The Amazon Valley is not a gigantic morass, where man must be half amphibious to survive. Probably not more than 5 per cent of the more than 2,700,000 square miles of the Amazonia are below the normal flood level of the rivers. The great mass is upland country."

A Glossary of Words and Terms Used in the Rubber Industry—XIX[1]

Insulation—Wires—Cables—Tapes—Compounds

Cable. Literally a rope or stout cord, and originally made of strands of fiber; now also of strands of wire; a single, heavy, insulated wire, or a stranded conductor (single conductor cable); or a more or less rope-like group of conductors with a common insulation or separately insulated (multiple-conductor cable). In general the term cable is applied to large stranded conductors, small stranded conductors being often called stranded wire or cord.

Cables may be bare or insulated. Insulation for separate or grouped conductors may be of pure or compounded rubber, gutta percha, waxed, oiled, or resin-treated manila rope paper, or varnished cambric, according to service needs. Insulation and abrasion protection and, to some extent, supplemental insulation, are afforded by coating the separate or grouped conductors with rubber-filled tape, dry or bitumenized jute or sisal hemp, heavy cotton braid, dry, or saturated with moisture-resisting compound, or with combinations of such materials.

As a further protection against dampness and abrasion cables are often sheathed in lead; and to impart greater strength and afford a more effective safeguard against mechanical injury, the lead-sheathed cable is encased in an armor of helically coiled steel bands or heavy, galvanized, closely-wound steel wire. The latter is sometimes used without lead-sheathing.

Cables may be of the aerial, submarine, or underground type, or designed for a large variety of other uses; and they are extensively employed by the telegraph, telephone, and electric light and power industries.

Cable types, varieties, and features include the following:

Aerial. See Radio, Antenna.

Aerial Cable. An outdoor, overhead conductor; a single or multiple cable conductor for telegraph, telephone, light, or power transmission suspended from pole lines; often, on account of its weight, supported by a messenger wire; designed to withstand extreme climatic changes and hence covered with tape or heavy braid and weatherproof compound or lead sheathing. See Messenger Wire.

Alarm Wire Cable. A cable containing an alarm wire. See Alarm Wire, Pilot Cable.

Annunciator Cable. A stranded group of conductors for signalling apparatus in offices, hotels, etc., of standard annunciator wire covered overall with either a heavy braid, paraffined, saturated, and polished; or with the wires bound with friction tape and enclosed with a heavy braid saturated with black weatherproof compound; or with the cabled wires covered with a belt of vulcanized rubber, protected with a heavy braid saturated with weatherproofing compound. See Annunciator Wire.

Antenna Cable Wire. See Radio.

Apparatus Cable. A rope-lay flexible stranded core cable, in many sizes, used for attaching dynamo terminals to brush holders, for transformer leads, etc.; insulated with vulcanized rubber or varnished cambric, and covered with dry or weatherproof braid. See Rubber Cable, Varnished Cambric Cable.

Armored Cable. A cable the insulated core of which is shielded from mechanical injury with heavy spirally-wound galvanized steel wire, or a metal (usually lead) tubing or casing. See Armor, Submarine Cable.

Asbestos Station Cable. A large-capacity conductor used for dynamo and other connections in a powerhouse, and which has an insulating and heat-resisting coating of asbestos. See Station Cable.

Association Cable. A cable conforming to the standards and specifications of the Cable Makers' Association of Great Britain.

Automotive Cable. Conductors employed on self-propelled vehicles including wires, cords, and cables, usually the latter term being used to include the three varieties. The classes are listed as ignition, lighting, starter, horn, and spot light, and include the following types:

Armored Lighting Cable. A cable for head and tail light wiring, single and duplex, having flexible conductors, cotton served, double varnished braid, with an overall braid in the duplex, and a wrapping of half round metal armor. Core sizes Nos. 18 to 8 A. W. G.

Body Wire. A conductor much used for wiring stop and tail lights, and consisting usually of a solid or flexible No. 18 A. W. G. core, tinned, rubber jacketed weatherproofed and slicked. In the duplex form two such conductors are laid parallel and covered with waterproofed braid.

Coil High Tension Cable. A secondary cable used between an ignition coil and spark plugs. One much used type has a stranded conductor of 19 No. 27 A. W. G. tinned wires insulated with a 30 per cent Hevea compound, used alone or with single or double braiding, and coated with insulating varnish. Other types with similar core have three rubber coverings, black, white and black, without braiding. See Ignition Cable.

Horn Cable. A type of cable, single or double, designed for horns or other signaling devices on automobiles, conductors of fine wire stranded usually to No. 18 A. W. G., single or duplex, metal covered with cotton wrap, varnished cambric, and either braid or armor. Also made with rubber instead of varnished cambric insulation, with dry or varnished braid overall.

Ignition Assembly Wire. A cabled conductor used in making up assemblies for automobile ignition and for general lighting purposes; cores usually stranded of Nos. 28 and 30 A. W. G. to sizes Nos. 16 to 20 A. W. G., bare or tinned, cotton served, high grade or commercial insulation, and finished with dry or varnished cotton braid.

Ignition Cable. A single conductor cable for connecting a generator ignition coil or a storage battery with spark plugs on an automobile engine; core, finely stranded, in sizes, usually 2,600 and 3,700 c.m.; insulation of rubber 7 and 9 mm.; glazed cotton braid cover, coated with insulating varnish to protect it from oil; also same sizes in a plain type in which braid cover is omitted. Varnished cambric is often used instead of rubber.

Lighting Cord. A duplex flexible conductor used for connecting automobile side and rear lamps with battery or generator, and consisting of two cotton-covered lamp cord conductors laid parallel and coated with well waxed or weatherproofed cotton braid.

Lighting Wire Cable. A flexible conductor used for connecting lamps, switches, and batteries; made in Nos. 10, 12, 14, A. W. G. wire, formed of strands of Nos. 27, 29, and 30 A. W. G. wire, respectively, insulated with rubber

[1] Copyrighted by Henry C. Pearson. Continued from *The India Rubber World*, May 1, 1926, pp. 65-66. See Crude Rubber and Gutta Percha Definitions, *The India Rubber World*, 1921; Pneumatic Tire Definitions, *The India Rubber World*, 1921 and 1922.

compound, and with a single inner and a double outer coating of varnished cotton braid. Also made in simpler type, using Nos. 10, 12, 14, 16, A. W. G. wire formed of strands of Nos. 27, 27, 27, and 28 wire, respectively, and with one coat of varnished cotton braid over the rubber insulation.

Low Tension Ignition Cable. A primary cable used for connecting storage battery or other source of current with ignition switch, or with spark coil; cores similar to coil high tension cable, but often lighter insulation with rubber and braid.

Spot Light Cord. A double, stranded, flexible conductor designed for spot lights on automobiles; similar to standard lamp cord, but usually made with double dry cotton braiding on the separate conductors and an overall braid over the twisted pair, often weatherproofed.

Starting Cable. A single conductor cable for connecting a storage battery to a starting motor or a generator in an automobile; core, fine rope lay strands; sizes, 00, 0, 1, 2, A. W. G.; rubber insulation; varnished cambric taping, and overall braid well varnished.

Trouble Lamp Cable. Rubber insulated cotton covered lamp cord having stranded conductors, usually No. 18, 20, or 22 A. W. G., designed for portable lamps.

Basket-Weave Cable. A multi-conductor cable for wiring ships or for use where conduits would be undesirable; for machine shop portable work, in mining operations, and where safety requires in a movable cable continuous grounding for high voltage currents. Conductors, small, solid, rubber covered, and wormed together with jute filling, covered with layers of rubber filled tape, cased in lead, rubber taped, and with an armor of fine, galvanized soft, steel wire stranded and tightly woven in basket pattern about the core. Sometimes brass or copper wire is supplied. See Braided Steel Wire Armor.

Battery-Charging Cable. A two-conductor cable for connecting automobile and radio storage batteries with the "line" at charging stations. Cores stranded, and in sizes 0000 to 8 A. W. G., rubber insulation, coverings, saturated braid, twin flat grouping in sizes 1 to 8, and worming with jute fillers in sizes 0 to 0000. Overall covering, two saturated braids.

Boiler Room Cable. A double-conductor cable designed to withstand much heat and moisture, each core made of 19 No. 30 A. W. G. wires stranded to No. 18 A. W. G., the pair coiled and laid up with jute to make round, incased in a rubber jacket, double taped, and double braided, waterproofed.

Border Light Cable. A cable used for lighting in the wings of a stage, and composed of two or three rubber-insulated flexible cords, Nos. 4 to 8 and 10 to 18 A. W. G., each covered with weatherproofed braid, and finished with cambric taping and weatherproof over-all braid.

Bunch Cable. A cable composed of a group of conductors. See Straight-Away Bunched Cable.

Cable Armature. A term sometimes applied to the armor or sheathing of a cable.

Cable Casing. The outermost sheath of cable.

Cable Core. The inner wire or strand (affording one or more conductors) of a cable.

Cable Joint. The insulated union of cable sections.

Cable Worming. The dried hemp or similar material forming a core in some cables and about which conductors are wound.

Car Cable. See Car Wire.

Car Jumper Cable. A multi-conductor flexible cable for joining steam railway cars, each core stranded, usually with nineteen 24 A. W. G. wires, soft cotton separator, rubber insulation, dry cotton braid covering, dry jute fillers in the worming, covering of rubber-filled tape, belt of rubber, and over-all covering of two saturated braids.

Compass Armored Cable. A specially-assembled cable designed to connect the master gyroscopic compass of a ship with the repeater compasses. Conductors, extra, flexible, equal to No. 19 A. W. G., cotton wrapped, high quality rubber insulation, cotton braided and color coded. Conductors cabled with jute in interstices, jacketed with high quality rubber, given an over-all of cotton braid weatherproofed, and armored with fine phosphor-bronze wire.

Composite Cable. A cable designed to afford much of the merit of a graded cable at a lower cost, and in which the core has a rubber jacket with the additional insulation of oiled paper or varnished cambric taping. See Graded Cable.

Concentric Cable. A cable having concentric conductors, cylindrical and coaxial and evenly insulated from one another. A conductor tubed in an insulating medium and surrounded by another conductor with exterior insulation. A cable in which the leading conductor is a well-insulated core and the return conductor is a metallic jacket or close, straight-away lay of wires, or wires spirally disposed, forming a cylinder, the common center of which is also the center of the inner core. Insulation may be of vulcanized rubber or paper with an over-all lead sheath. Much used for low tension underground service, and for feeders for street railway and lighting mains.

The concentric type of cable is designed to afford utmost use of ducts by having large metallic cross section with minimum diameter of cable, and having the advantage of keeping the positive and negative conductors close together within one sheath, so that if a short circuit occurs but one conductor may be damaged, the short circuit resistance being usually low enough to operate the station circuit breaker.

Concentric Lay Cable. A single conductor cable having one or more layers of spirally-laid wires or groups of wires surrounding a core wire.

Deck Cable. A duplex, portable cable for rough use in damp places, cores untinned in sizes 10 to 18 A. W. G., bunched, soft cotton wrap, vulcanized rubber insulation, one saturated braid, dry jute fillers, between the twisted conductors, vulcanized rubber belt, saturated braid cover.

Dry Dock Cable. See Floating Dry Dock Cable.

Duplex Cable. Two insulated single conductor cables arranged as a twisted pair, with or without an over-all insulating covering.

Elastic-Centered Cable. A multiple conductor aerial transmission cable formed by coiling usually six or more bare wires about a bitumenized jute or other soft, compressible fibrous core, designed to afford flexibility in handling and elasticity under wind pressure.

Electric Music Control Cable. A cable designed for automatic musical instruments, one for an electric violin having 86 conductors made of fine wire filaments separately insulated with rubber, cabled in groups and color-coded with tracers, jute filled to impart tubular form, and over-all braid of silk with ends shellacked.

Electric Organ Cable. An assembled conductor cable designed for pipe organs, and with conductors of bare copper wire covered with two servings of cotton, paraffined. Conductors are cabled in groups of 12, each group having a different colored thread in the center. The groups are cabled about a separate group of 7 spare wires, and given an over-all of heavy cotton braid, saturated with paraffine or flameproof compound. The total number of conductors ranges from 43 for 3 octaves to 151 for 12 octaves.

Electric Vehicle Cable. A single, heavy, stranded conductor for connections between battery, controller, and motor; insulation usually 30 per cent Hevea rubber. Outer covering if specified. (*To be continued*)

Age-Rite in Rubber Compounding

THE annual output of rubber goods in the United States has an estimated value of a billion dollars, and all concerned in the rubber industry have long recognized the potential value of an effective means to preserve rubber goods against loss of serviceability by perishing. Several materials have recently become available for this purpose whose incorporation in a rubber mixing ensures the retention of the original quality of rubber goods much beyond their usual life. Thus the prompt and general adoption of such a material in rubber manufacturing may be as important and effective as any factor now being considered for preventing a shortage of crude rubber.

The deterioration or aging of rubber is due chiefly to oxidation. Therefore, any material which is added to rubber to retard its deterioration must be capable of delaying the combination of oxygen with rubber. Hence the term "anti-oxidant" as applied to such material has come into general use. This term is quite satisfactory but not entirely precise, because an age-resister does not completely prevent the combination of oxygen with rubber, but only retards it.

The leading type of anti-oxidants is covered by three United States patents: 1,515,642 Nov. 18, 1924, Winkelmann and Gray; 1,532,213 April 7, 1925, Winkelmann; 1,532,398 April 7, 1925, Geer and Jones; all owned by the same rubber company. The anti-oxidant known as Age-Rite made under these patents and all other products to be developed under them in the future have recently become available for general use in the rubber industry under an exclusive agreement. In this connection the following data are of timely interest.

Age-Rite is the product formed by the combination of acetaldol with alpha-naphthylamine in equimolecular proportions. It is a cherry-red resin, without definite melting point, and is brittle when cold, softens when warmed slightly, and flows freely at about

TABLE I—TREAD STOCK

USING D P G AND AGE-RITE

Cure and Life	D P G Alone	½% Age-Rite on Rubber	1% Age-Rite on Rubber	2% Age-Rite on Rubber
Rubber	55.3	55.3	55.3	55.3
Zinc oxide	15.	15.	15.	15.
Gas black	20.	20.	20.	20.
Mineral rubber	5.	5.	5.	5.
Oil	2.	2.	2.	2.
Sulphur	2.25	2.25	2.25	2.25
D P G	.45	.45	.45	.45
Age Rite		.275	.55	1.1
	100.00	100.275	100.55	101.1

Min. at 294° F.	Tens.	Elong.	Tens.	Elong.	Tens.	Elong.	Tens.	Elong.
30	3298	725	3678	725	3925	719	3741	725
45	3708	675	3947	675	4103	725	4017	692
60	3557	650	3887	654	4122	675	3956	700
75	3573	625	3816	650	3957	638	3887	638
90	3499	613	3685	625	3891	625	3733	650

Geer Life Test	45 at 294° F. T	45 at 294° F. E	60 at 294° F. T	60 at 294° F. E	45 at 294° F. T	45 at 294° F. E	60 at 294° F. T	60 at 294° F. E	45 at 294° F. T	45 at 294° F. E	60 at 294° F. T	60 at 294° F. E	45 at 294°F. T	45 at 294°F. E	60 at 294° F. T	60 at 294° F. E
Original	3708	675	3551	650	3947	675	3887	654	4103	725	4122	675	4017	692	3956	700
2 days	3234	600	2787	542	3712	629	3337	579	3894	650	3701	613	3838	654	3849	629
5 days	2334	529	1665	433	3061	583	2575	500	3470	604	2970	513	3588	617	3350	533
7 days	1614	458	1025	317	2325	525	1814	429	2918	567	2277	483	3385	600	2927	577
9 days	1196	408	855	283	1861	483	1398	354	2402	533	1888	417	3012	592	2681	525
12 days	914	283	770	200	1479	417	1098	292	1902	458	1367	367	2593	533	2325	483
14 days	806	283	754	200	1200	367	1015	275	1612	425	1263	308	2204	508	2000	438

TABLE II—TUBE STOCK

USING D P G AND AGE-RITE

Cure and Life	D P G Alone	½% Age-Rite on Rubber	1% Age-Rite on Rubber
Rubber	92.7	92.7	92.7
Zinc oxide	3.	3.	3.
Sulphur	3.56	3.56	3.56
D P G	.74	.74	.74
Age-Rite		.46	.93
	100.00	100.46	100.93

Unwrapped Open Steam Min. at 294° F.	Tens.	Elong.	Tens.	Elong.	Tens.	Elong.
20	2947	769	2951	776	3071	788
30	3157	754	2924	750	3283	775
40	3378	738	3029	725	3051	729
50	3000	738	2720	713	2770	713

Geer Life Test	30" at 294° F. T	30" at 294° F. E	40" at 294° F. T	40" at 294° F. E	30" at 294° F. T	30" at 294° F. E	40" at 294° F. T	40" at 294° F. E	30" at 294° F. T	30" at 294° F. E	40" at 294° F. T	40" at 294° F. E
Original	3157	754	3378	738	2924	750	3029	725	3283	775	3051	729
2 days	3562	763	3526	717	3428	763	3410	719	3905	775	3481	713
4 days	3183	700	3166	675	3494	750	3317	675	3428	729	3083	658
7 days	3000	696	2659	621	3192	717	2755	625	3180	713	2951	638
9 days	2659	683	2086	575	3036	708	2392	569	3321	696	2683	592
11 days	1965	575	1860	550	2807	633	1743	538	3333	683	2430	558
14 days	1765	600	311	358	2605	587	1550	500	2856	658	2024	517

the temperature of boiling water. It is insoluble in water, sparingly soluble in gasoline, and freely soluble in benzol and many organic solvents. It has a specific gravity of 1.16, is non-poisonous, and has a faint odor characteristic of alpha-naphthylamine which disappears quickly from rubber goods.

From 0.5 per cent to 1.0 per cent on the rubber content of the compound is sufficient. In pure gum stocks such as inner tubes and frictions, about 0.5 per cent on the rubber is ordinarily enough. In compounds containing large amounts of carbon black or clay, such as tire treads, nearer to 1 per cent on the rubber is required. It may be added at any phase of the mixing, either before, during or after the addition of the fillers, and no change in accelerator, sulphur, or cure is necessary.

Due to melting at milling temperatures it is a pronounced plasticizer or softener for rubber. Therefore, it facilitates mixing and tubing and tends to prevent scorching of a compound at working temperatures. This anti-oxidant may be added to a compound with assurance that in the great majority of cases it will have only a very mild, if any, accelerating effect, and in no case does it retard the cure. It produces no appreciable effect on the stiffness, hardness, abrasive resistance or tear. In high-grade tread stocks it may increase the tensile and elongation about 5 per cent, but in general its effect on the tensile and elongation of a compound is not pronounced. The hardness, abrasive resistance and tear of a stock containing this material do not change appreciably with age.

The principal effect of this age resister on a compound during aging is to retard greatly the ordinary falling off of tensile strength and elongation at break, and to bring about a simultaneous increase in stiffness (as measured by the stress-strain curve) much greater than that which occurs when it is absent. This increase in stiffness can be observed from the stress-strain curves of a compound with progressive aging. It is effective in retarding aging both by heat and sunlight. This statement applies also to articles which are flexed in service as for example tire side-walls and belting.

By the use of this age resister it is easily possible to produce inner tubes which will still be as good in their third season of use as in their first, while in the case of tire treads it maintains their abrasive resistance by retarding the ordinary decline in physical properties with age. This effect is particularly beneficial to tires used in their third season, for at that age their originally high quality frequently deteriorates to third grade.

Specific test data on the effect of Age-Rite in retarding the loss of tensile and elongation in typical tire treads and inner tubes are given in Tables I and II. It will be noted that in tread stock, one per cent of the anti-oxidant is ample to restrain the tensile of 4,103 pounds from declining under 2,900 pounds after seven days' aging in the Geer oven, which is equivalent to full two years of aging. Similarly a half per cent of anti-oxidant will preserve the tensile of an inner tube unimpaired for 14 days of Geer oven aging.

This anti-oxidant will not stain articles with which it comes in contact, and it is very clean and satisfactory to handle. It is suitable for use in the bright and delicately colored goods because it does not alter their color. The beneficial effects of this age resister are evident in rubber compositions of all qualities whether containing reclaimed rubber or not. Thus it becomes a factor of economy to manufacturer, dealer and consumer of all grades of rubber products. This fact will be particularly appreciated in tropical regions where articles of the best rubber quality deteriorate so rapidly that their purchase is seriously restricted.

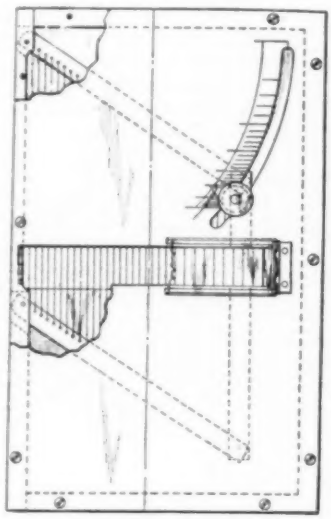
Anti-oxidants thus rank equal with accelerators in economic importance to manufacturers, dealers and users of rubber goods.

AMERICAN EXPORTS IN 1925 OF COPPER WIRE, INCLUDING INSULATED copper wire and cable, totaled 29,483,000 pounds, as compared with 25,215,000 pounds in 1924, or a gain of 16.9 per cent.

Patented Thread Counter

The trying process of counting the picks of yarn per inch of width of a fabric by means of a needle and magnifying glass can be dispensed with and the count be determined more quickly and easily by means of the device represented in the illustration.

The instrument is rectangular in form and its upper surface contains openings or windows through which to observe the placement of the fabric under test and the positions of a set of parallel wires serving as counters. These wires are laced between a pair of bars whose ends are pivoted at one side of the instrument and joined together by a link at their opposite ends.



Dieterich Fabric Counter

In counting a construction the straight edge of the sample is placed under the wires and adjusted to the straight edge of the instrument along which the wire frame is hinged. This is observed through a window with magnifier extending across the top of the instrument. Next the hinged frame is moved by a hand knob on the link mentioned. As the frame is thus extended the wires still parallel are separated and finally adjusted so that each wire as seen through the magnifier corresponds with a thread of the fabric. Their count per inch is then indicated by a pointer on the knob of a graduated scale.

Varnishes for Rubber Fabrics

Widely various as the applications of rubber are, those of varnish are probably even more so. It has long been used in the rubber industry and, in fact, is used in the manufacture of practically everything except clothing and food products. Even in the latter case varnish is a component of the printing and decoration on the container or serves as a protective coating against contamination by corrosion from metal cans. In the varnish industry a vulcanizing varnish involves the solution of other problems beside those strictly essential.

Generally speaking, in the past, rubber manufacturers have been obliged to solve their varnish problems unaided. The limitations of this course are obvious since varnish making is an age old and highly developed industry operating a complicated technique under scientific control. It is only because of the lack of knowledge on the part of the varnish maker of the technicalities of finishing rubber fabrics that better rubber varnishes have not been produced until now.

The development of the automobile industry has presented many new technical problems among them that of black finishes in color, full luster, semi-gloss and dull for folding top fabrics according to requirements. Such varnishes are generally applied to the uncured top fabric by machine and vulcanized with the goods in hot air chambers. There is a limited demand for two-coat work approximating pyroxylin finish, where unusual fullness of luster and extreme durability are demanded for closed automobile tops.

Recently a substantial demand has arisen for colored rubber fabrics. This has been met by the production of curing varnish in various shades having the same properties as the best black qualities. Of the colored varnishes the most popular are browns, greens, olive drabs and grays, but any other color can be made.

Rubber Covered Rolls for Industrial Uses

Outline of Industrial Roll Uses—Roll Compositions—Preparation and Caring of Roll Centers—Curing, Testing, Grinding—Crowning and Density

Manhattan Rubber Mfg. Co.

Fig. 1—Paper Roll Centers Ready for Turning and Covering

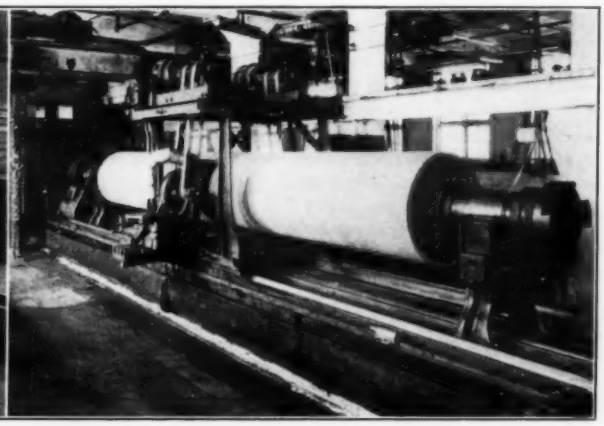


Fig. 2—Grinding a Paper Press Roll

ONE of the most important and skillful applications of rubber to industrial purposes is that of rubber covered rolls. It is also one of the original products made by the mechanical rubber goods division of the industry as applied in the familiar household clothes wringer. This application has never been superseded but a line of rubber covered rolls has been developed as essential equipment for machines used for many industrial purposes. Such rolls run in size from hand rollers to mammoth paper press rolls of 210 inches face of rubber covering and weighing several tons.

The production of rubber rolls requires special building and handling equipment, installed as a special department and operated under skilled direction. Success in turning out a roll serviceable for a given purpose requires expert knowledge and experience of compounding and rubber working to meet the practical conditions of service, most of which are very special and severe. These conditions are so exacting that comparatively few rubber companies handle the work on a large scale and in all its variety.

Aside from the equipment of mixers and heavy calenders for producing the sheet stocks from which the rubber covering is built up, a special shop is necessary for handling the heavy rolls in the various stages of their progress. A modern roll shop is pictured in the accompanying illustration. Its arrangement and equipment permit the handling of rolls entirely by an overhead trolley system of conveyers from point to point through the successive stages of preparation of the roll center, rubber covering, curing, grinding and shipping.

Processes of Roll Covering

The processes involved in building a rubber covered roll from the cast iron center to the finished roll are essentially independent of the size. Preceding the delivery of the sheet rubber composition and cement in the roll shop the cast iron center as received from the customer requires preparation. If it is not already roughly turned to suitable size it is mounted in a lathe for that purpose. The grip of the rubber on the metal roll center is in large part mechanical, therefore the machine work on the center is in the form of a V-thread with rough surfaces. In addition to the spiral screw thread made in the lathe, inch wide flat grooves are planed across the spiral threads from one end to the other of the roll, thus serving a means of locking the rubber and iron against both circumferential and longitudinal movement.

Following this machine work the roll center is washed with naphtha to remove adhering grease or oil and is then placed in a vulcanizer where it is heated for a time by high pressure steam which loosens any adhering dirt and removes the last trace of oil. When removed from the vulcanizer and cooled the center is mounted on temporary bearings and scoured with wire brushes as a precaution against the presence of anything removable. After this has been done the center is ready for the operations of the rubber workers.

Roll Compositions

Many of the purposes and kinds of liquid in which rubber rolls are used require special rubber compounds cured to definite degrees of hardness or density to meet the service conditions. After selection of a roll cover formula appropriate for a given purpose, special care is exercised to sift the weighted ingredients for removal of any stray foreign materials that may have been accidentally included. As a further precaution to ensure freedom from the presence of grit in the finished roll the rubber mixing is strained through wire cloth with meshes 90-100 to the inch. After this treatment the rubber mixing can be calendered with confidence in its uniformity and fineness of texture. As delivered from the calenders to the workman doing the roll covering, the stock is sheeted of uniform thickness with edges cut straight and rolled in a smooth, clean liner.

The Roll Center

Roll centers are usually of cast iron. In the case of new rolls they are received with body rough but with journals finished and protected like three paper press-roll centers shown in Figure 1. The centers pictured are from a lot of 12 made by Charles Walmsley & Co., Bury, England. They weigh 22,000 pounds each

and measure 233 inches face by 27½ inches diameter and were rubber covered to 30½ inches finished diameter requiring approximately 2,400 pounds each of rubber. Until recently these press rolls have not been exceeded in length of face.

Cementing the Roll Center

Firm and perfect contact between the roll center and its rubber cover is established by applying thoroughly to the scored center one or more brush coatings of hard curing rubber cement and allowing it plenty of time for drying between coats, and protecting it from dust. Several lines of soft twine are often run full length of the roll center, spaced at intervals on its circumference on top of the cement coat. Their purpose is to conduct away any trapped air, venting it at the ends of the roll.

Another aid to the attachment of the cover to the center is the use of plies of varying density or curing quality. Usually they consist of a ply of hard rubber next to the hard rubber cement, next an intermediate layer of the same hard rubber and the body of the roll stock mixed in equal parts. This layer serves to make the transition between the extremes of the hard rubber attachment and the roll face.

Covering Operations

The rubber sheets from which the covering is built up are handled in calendered widths rolled in smooth, clean liners. The work of building up the plies is all done by hand. It is necessarily slow because it is essential for success to absolutely prevent trapping any air between plies and to vent by pricking every blister that appears in the progress of the work. This is done by an awl. All joints in the plies are staggered and stitched down in every ply.

Wrapping and Curing

Before curing, the roll face is encircled with a couple of plies of wet sheeting as a jacket, smoothed down by hand, then cross-wrapped spirally with narrow cloth passing onto the roll under a tension bar in the wrapping lathe. After this preparation the roll is transferred to the vulcanizer, provided in most instances with facilities for coupling it so that the roll may be slowly revolved by power to ensure uniformity of cure through to the center on all sides.

After vulcanization the roll is not unwrapped until fully cooled when it is ready for testing of attachment of cover to center. This consists in sounding the rubber all over by tapping it lightly with a hammer. Any appreciable lack of attachment between center and cover is thus detected with certainty. Failure to pass this test condemns the covering job to be turned off and done over. Success justifies all the deliberation and care that can be exercised.

Roll Grinding

One of the most particular features of roll covering is grinding to finished dimensions. This is done in a special lathe with the roll turning on its own journals as pictured in Figure 2. The utmost care is exercised in setting up the roll for grinding. Separate motor driven grinding wheels are mounted to travel on opposite sides of the roll. They cut dry as they pass up and down the lathe and the grindings are removed by an exhaust pipe.

It is common practice to grind press rolls with more or less crown. This term means the increase of the diameter at the center of the roll compared to that at either end of the face. The amount of the crown is specified by the user of the roll and is based on practical experience rather than theoretical calculation. The usual and preferred method of measuring the crown of a roll is to take its diameters by means of a micrometer caliper reading to thousandths of an inch. When measured in this way the difference between central and end diameters is called the diametrical crown.

Another way to measure crown is by measuring circumferences with a steel tape. If found by this method the result should be called the circumferential crown. The range of diametrical crowns may run according to circumstances from 0.005 to 0.120 of an inch.

Roll Density

By the term density is indicated the hardness of the rubber composing the face. It is measured by an instrument known as a plastometer, which indicates automatically on a gage the amount of depression of a ⅛-inch steel ball in the surface of the rubber, under 1 kilogram weight. The hardness is read in hundredths of a millimeter. Different rubbers can thus be compared. Another important use of the instrument is the taking of periodical readings of any rubber article like a press roll for a record of the life of the roll.

The rubber covered paper press roll is the bottom roll in the three presses of the wet end of a paper machine. The water is extracted from the freshly formed paper by compression exerted by a heavy granite roller between the nip of which, and the underlying rubber roller, the paper passes on a felt conveyer.

Accuracy of dimensions and perfection in quality and texture of the rubber are always essential in rubber covered rolls because they function as parts in some machine or process. The importance of accuracy in these points is particularly noteworthy in the case of paper press rolls because of their important position in the modern paper making machines. These are operated continuously at speeds as high as 1,070 feet per minute at the finished end. Thus delay or failure to function perfectly results in serious loss of production.

Hardly less exacting are the operating conditions for rubber covered rolls in machines used in other industries, such as printing, proofing, textile, leather working, etc., calling for exceptional skill, experience and facilities in the organization of a roll covering department.

RUBBER ROLLS FOR INDUSTRIAL PURPOSES

PAPER INDUSTRY	TANNING INDUSTRY
Couch	Fleshing
Felt carrier, plain	Putting out
Felt carrier, wormed	Shaving
Felt wringer	Splitting
Press, top and bottom	Taking in
Size, top and bottom	Unhairing
Smoothing, top and bottom	Wringer

TEXTILE INDUSTRY

For squeezing out liquors in various machines and operations of dyeing, bleaching, mercerizing and finishing.

Back filling	Singeing
Carbonizing	Sizing
Cold water	Slashing
Dyeing	Sour chemic squeezers
Filling	Starch mangles
Jig	Tentering
Mercerizing	Washing and soaping
Padding	Water mangle
Quetch (silk)	Wetting out
Recuperator	Washing and scouring

MISCELLANEOUS USES

Bean picker	Inking
Bleaching	Paper box machine
Corn husking	Rubber proofing
Doubling	Sheet iron galvanizing
Gluing machine	Silk spinning
Impression	Tobacco squeezing

U. S. RUBBER CO. PLANS GROUP INSURANCE

Press reports state that the directors of the United States Rubber Co., 1790 Broadway, New York, N. Y., have decided upon a group insurance plan for the benefit of the organization's 10,164 full-time salaried employes. According to the provisions of the new plan salaried employes who have been three months or more in service, excluding those in foreign service, are eligible for this insurance. The cost to employes is at the nominal rate of 15 cents a week for each $1,000 of insurance, the company underwriting a substantial portion of the premium.

Dealers' and Manufacturers' Stocks of Tires[1]

THE Department of Commerce has recently issued a fourth semi-annual survey of stocks of automobile tires and inner tubes held by United States dealers and manufacturers. In this report 32,184 dealers participated; of these 18,284 reported stocks of balloon casings for 20-inch, 21-inch, and 22-inch wheels.

In the accompanying tabulation a comparison will be found between the stocks of April 1, 1926, and those of the year previous. It will be noticed that the average stocks of 2,056,472 casings differ little in amount from 2,026,356 casings of a year ago, but that stocks of inner tubes are heavier, 3,839,799 as against 3,317,104. The percentage of dealers stocking balloon casings for 20-inch, 21-inch, and 22-inch casings is said to be 57 per cent of the entire number of dealers reporting, while a year ago only 30 per cent carried such tires. The growing importance to the replacement trade of the regular balloon tire is shown by the fact that such tires now constitute one-fifth of the total stocks reported as compared to one-seventh in October, 1925, and one-fourteenth in April, 1925.

Dealers' Stocks Classified According to Volume

The list of dealers reporting, and classified according to the volume of stock, differs little from that of a year ago, and as usual the dealers carrying stocks of from 10 to 25 casings predominate. It has also been found that, of the 32,184 dealers reporting, 6,552 had stocks of less than 10 casings, 9,114 carried from 10 to 25 casings and 7,076 from 26 to 50.

Manufacturers' Stocks of Tires and Tubes

Statistics prepared by the Rubber Association of America also reveal the existence of larger stocks in the hands of manufacturers, such estimates representing 75 per cent of the tire manufacturing industry. Raising these figures to 100 per cent, it has been found that manufacturers' stocks were apparently 8,915,255 automobile casings on March 31, 1925, the figure for March 31, 1926, being 11,393,222, and 13,345,802 inner tubes on March 31, 1925, as against 18,188,498 on March 31, 1926. Stocks also of solid and cushion tires totaled 218,762 on March 31, 1925, rising on March 31, 1926, to 274,438.

Stocks Classified According to States

In an arrangement of dealers' stocks geographically, or by states, Pennsylvania leads in the number of dealers reporting, and in the number of tires and tubes on hand, but is easily outdistanced by several other states in the number of tires or tubes per dealer. Other states ranking well might be arranged in the following order: New York, Ohio, California, Illinois, and Michigan.

DEALERS' STOCKS OF AUTOMOBILE TIRES

	April 1, 1926			April 1, 1925		
	Number	Dealers Reporting	Average Per Dealer	Number	Dealers Reporting	Average Per Dealer
Total casings (including balloons)	2,056,472	32,184	63.9	2,026,356	32,592	62.2
Balloon casings (only)	399,808	18,284	21.9	144,433	9,745	14.8
Inner tubes	3,839,799	32,112	119.6	3,317,104	32,477	102.1
Solid and cushion tires	50,230	1,866	26.9	47,958	2,381	20.1

MANUFACTURERS' STOCKS OF TIRES

	Automobile Casings	Inner Tubes	Solid & Cushion Tires
March 31, 1925	7,132,204	10,676,642	175,010
March 31, 1926	9,114,578	14,550,799	219,551

*Preliminary statistics, representing 75 per cent of the industry.

DEALERS' STOCKS OF AUTOMOBILE TIRES BY STATES, APRIL 1, 1926

	Total Tires			Balloon Tires			Inner Tubes		
	No. of Dealers Reporting	No. of Tires on Hand	Average No. per Dealer	No. of Dealers Reporting	No. of Tires on Hand		No. of Dealers Reporting	No. of Tubes on Hand	Average No. per Dealer
Alabama	282	31,619	112.1	153	4,067		270	42,529	157.5
Arizona	170	9,160	53.9	107	2,141		170	18,207	107.1
Arkansas	405	22,084	54.5	181	4,273		410	44,391	108.2
California	1,781	128,492	72.1	1,037	25,379		1,740	212,036	121.8
Colorado	470	28,371	60.4	290	5,962		480	53,661	111.7
Connecticut	308	21,110	68.5	190	5,672		295	34,219	115.9
Delaware	60	4,862	81.0	29	800		58	8,156	140.6
Dist. of Col.	47	4,005	85.2	34	926		46	7,298	158.7
Florida	288	28,599	99.3	170	6,586		286	48,960	171.2
Georgia	358	24,953	69.7	183	4,716		366	61,596	168.3
Idaho	198	9,586	48.4	146	2,518		213	18,361	86.2
Illinois	1,712	125,073	73.1	1,079	26,393		1,714	233,209	136.1
Indiana	1,137	67,736	59.6	683	13,108		1,142	155,135	135.8
Iowa	1,159	65,138	56.2	689	9,866		1,150	119,431	103.9
Kansas	976	59,091	60.5	601	11,771		967	100,369	103.8
Kentucky	454	29,427	64.8	229	4,300		462	93,847	203.1
Louisiana	262	18,009	68.7	125	2,313		274	33,573	122.5
Maine	456	23,556	51.7	202	4,871		466	35,569	76.3
Maryland	360	18,329	50.9	154	3,726		360	33,629	93.4
Massachusetts	821	81,464	99.2	521	18,450		833	151,137	181.4
Michigan	1,209	79,650	65.9	819	18,656		1,278	211,442	165.4
Minnesota	974	57,545	59.1	616	12,075		966	110,639	114.5
Mississippi	297	16,902	56.9	126	2,893		296	34,487	116.5
Missouri	1,173	89,094	76.0	578	14,850		1,191	196,941	165.4
Montana	284	14,451	50.9	179	3,285		283	26,936	95.2
Nebraska	573	34,667	60.5	353	6,034		572	67,555	118.1
Nevada	66	3,676	55.7	40	687		62	5,514	88.9
New Hampshire	210	11,002	52.4	115	2,507		201	19,919	99.1
New Jersey	578	34,337	59.4	314	7,487		553	58,351	105.5
New Mexico	161	6,545	40.1	84	1,367		159	12,467	78.4
New York	1,952	156,729	80.3	1,134	30,899		1,924	244,452	127.1
No. Carolina	503	35,420	70.4	219	5,527		508	61,837	121.7
No. Dakota	474	16,896	35.6	289	3,064		458	36,928	80.6
Ohio	1,935	118,978	61.5	1,135	22,398		1,914	196,828	102.8
Oklahoma	607	42,718	70.4	384	10,322		599	91,253	152.3
Oregon	420	31,273	74.5	271	5,786		409	46,882	114.6
Pennsylvania	2,872	163,689	57.0	1,509	34,258		2,857	276,215	96.7
Rhode Island	132	7,849	59.5	66	1,376		128	12,167	95.1
So. Carolina	253	12,644	50.0	93	1,194		262	29,036	110.8
So. Dakota	419	18,779	44.8	263	3,373		426	40,879	96.0
Tennessee	356	24,941	70.1	155	4,256		367	49,907	136.0
Texas	1,094	72,461	66.2	622	12,644		1,116	143,727	128.8
Utah	155	8,877	57.3	97	2,215		151	15,190	100.6
Vermont	192	7,729	40.3	80	1,584		180	11,763	65.4
Virginia	701	29,364	41.9	250	3,768		695	51,835	74.6
Washington	717	38,883	54.2	406	7,509		695	65,085	93.6
West Virginia	435	23,431	53.9	200	3,578		442	39,584	89.6
Wisconsin	1,158	69,399	59.9	746	13,401		1,142	124,157	108.7
Wyoming	134	6,117	45.6	88	1,238		133	11,406	85.8
Unallocated	446	21,762	48.8	248	3,739		443	41,104	92.8
Total	32,184	2,056,472	63.9	18,284	399,808		32,112	3,839,799	119.6

Solid and Cushion Tires

The number of dealers reporting for April 1, 1926, their stocks of solid and cushion tires was 1,866, and the number of tires on hand was estimated at 50,230, or an average of 26.9 tires per dealer. This compares with 2,391 dealers on April 1, 1925, reporting 47,958 tires, or 20.1 per dealer. In an arrangement by states, Pennsylvania again led in the number of dealers reporting, or 244, with 5,806 casings on hand. Records of importance for other states were as follows: California, 148 dealers, 6,336 tires on hand; New York, 126 dealers, 4,988 tires; and Illinois, 100 dealers, 5,072 tires.

Makes of Tires Handled

Of 30,924 dealers reporting on April 1, 1926, regarding the number of makes of tires handled, 12,994, or 42 per cent of the total number, indicated one make, and 11,576 dealers, or 37.5 per

[1] Special Circular No. 1,149, Rubber Division, Department of Commerce, Washington, D. C.

cent of the whole, reported two makes. The figures are approximately the same as a year ago, and indicate the continued tendency toward specialization, which is said to be quite in line with good merchandising policy, especially since most makes are produced in several qualities with different price levels.

Dealers Maintaining Additional Lines of Business

Of the 33,440 tire dealers reporting, 13,751 also sold automobiles, these dealers representing 41.1 per cent of the total number, a higher figure than for the year previous. About two-thirds of the dealers sell tire repair materials, 57 per cent repair inner tubes, and over one-eighth of the dealers have equipment for vulcanizing tires, as compared with one-ninth a year previously.

Vulcanized Crêpe Rubber Soles

When plantation crêpe rubber soling was introduced a few years ago tennis players, golfers and wearers of sport shoes generally were quick to appreciate its unique and practical advantages for outing purposes. Such soling is featured for the season of 1926. Since its first introduction the quality and surface of uncured crêpe soling has been perfected by the development of the natural finish plantation soling as a special grade and various means have been devised for its attachment to shoe welts without showing stitches on the face of the sole.

Unquestionably uncured crêpe soling gives good service, but from the rubber man's point of view the improvement of its tensile properties resulting from vulcanization greatly enhances its wearing value and the tendency to mushrooming in wear is entirely removed. These considerations have led to the development of cured crêpe soles on vulcanized shoes such as tennis, sport and work shoes of well-known types. Crêpe soles are quite as desirable on these shoes as on the corresponding goods in leather. It is only by vulcanization that crêpe soling is attachable in the construction of ordinary fabric and rubber footwear.

Selected first latex crêpe, or standard ribbed smoked sheets may be used. The breaking down and compounding periods are kept as brief as possible and yet sufficient to incorporate the vulcanizing ingredients. A typical mixing for vulcanized crêpe soling is as follows:

Rubber	100
Zinc oxide	1
Sulphur	2
Tuads accelerator	½

Stock after this formula is of floating gravity and of natural or uncompounded appearance. When vulcanized it shows superior tensile properties, resilience and greater abrasive wear resistance than the best uncured crêpe soling. When mixing, the rubber is worked as cool as is consistent with rapid milling. The crêped appearance on the surface is effected by sheeting the material with a cold roll in the calender.

The final thickness of sole is obtained by plying together two or three crêped sheets on a cool calender. This method of plying is essential for eliminating air between the rough surfaces as they are progressively united between the rolls. Compression of plies of crêpe in a platen press inevitably traps air between the rough surfaces however heavy the pressure may be.

Sheet crêpe stock is cut in sole form by dies in a beam cutting press or on a clicking machine, ready for application to the shoe bottom by cement. Crêpe spring heels are made of skived edge plies of crêpe stock built up on the heel seat of the shoe before applying the full length sole over them. Regular form heels with either straight or curved breast are built up of plies and attached to the sole by cement and pressure.

The completed fabric and rubber shoes are vulcanized in a hot air heater to consolidate the internal rubber parts of the bottom, the foxing and crêpe soling. The presence of ultra accelerator in the rubber mixings effects the cure in two hours. During the first hour the temperature is raised to 250 degrees F. and the heat is continued at that temperature during the second hour.

Colored crêpe soles are as readily obtainable as those of natural color by the use of special organic rubber pigments in great variety. They are proof against change by the action of sulphur. All crêpe rubber colored shoes have been made in popular light weight bathing slippers. These were originally vulcanized by chloride of sulphur. This method was not commercially practical and was superseded by the familiar hot air vulcanization with ultra accelerators.

Gel-Molded Rubber Articles

The Peachey process of vulcanization of rubber by the reaction of absorbed sulphur gases, announced in 1920[1], has been developed as an industrial process and is now applied successfully in the manufacture of various rubber goods. The ramified applications of the Peachey process are included in two classes: (1) the "gel" or solution process, and (2) the "dry" or chamber process. Of these the solution process is particularly interesting owing to the novelty of casting rubber articles from a solution of rubber poured into a mold and removing it automatically vulcanized.

The procedure of the gel or solution process consists in saturating two portions of rubber solution, one with hydrogen sulphide gas, and the other with sulphur dioxide gas. On intimately mixing these gassed solutions the interaction of the two gases and the rubber results in the formation of a gel. By evaporating the solvent a residue of vulcanized rubber is obtained.

The rubber used may be either pure or compounded with fillers and pigments milled in before solution. A solvent to which a known quantity of sulphur dioxide is added can be substituted for the second rubber solution with better and quicker results in mixing the two quantities, and this is the usual practice.

The usual trade method is followed in preparing the rubber solution, which is subsequently gassed to saturation point by bubbling hydrogen sulphide through the liquid. A simple method consists in conducting the mixing and gassing simultaneously. Thus a gas-tight cylinder containing the rubber and solvent and with a gas inlet through the center of the shaft on one end, is revolved horizontally. Hydrogen sulphide is admitted and solution and gassing effected together. A solution of sulphur dioxide is prepared by bubbling this gas through a solvent such as benzol, naphtha, etc., until 2.5 grams of solvent have been absorbed. The sulphur dioxide content of the solvent is the determining factor in the degree of vulcanization effected in the gel.

Ten parts by volume of the hydrogen sulphide gassed rubber solution (12.5 per cent of rubber) are mixed with 1 part by volume of the sulphur dioxide benzol solution. The mixture is well mixed by a stirrer wholly immersed in the liquid to avoid the inclusion of air bubbles. Using these proportions the time of gelling averages from 20 to 25 minutes, dependent somewhat upon the temperature. By the use of benzoquinone and 1:2 naphthaquinone as accelerators the time of gelling may be varied from 20 minutes to 1 minute.

A gel molded water bottle, for example, is made by pouring the mixed gassed solutions into a two-part mold containing a core to shape the hollow interior of the article. After elapse of sufficient setting time the mold is removed and the solvent allowed to evaporate from the gel on the core. When the gel is dry the bottle is vulcanized and can be stripped from the core in the usual manner. It only requires that the screw top closure be secured in the outlet to complete the hot water bottle.

[1] *The India Rubber World*, August 1, 1920, 729.

AMERICAN EXPORTS TO NICARAGUA OF RUBBER BELTING TOTALED in 1923, 8,964 pounds, value $6,531; 1924, 8,106 pounds, value $6,152; and 1925, 7,716 pounds, value $6,922.

Progressive Rubber Heel Production

Application of Continuous Processing Idea—Layout of Plant—Description of Machinery—Timing of Units—Use of Conveyers—Ultimate Gain

RUBBER manufacturers are now intensely interested in the application of the continuous processing idea to factory practice as the most logical means of reducing costs to levels not yet reached. The adaptation of the tubing machine to inner tube manufacture and the resulting method of continuous production has already been outlined in this journal.[1] While many other branches of the industry have worked out methods along these lines, the one that merits attention at the moment is that of the rubber heel industry.

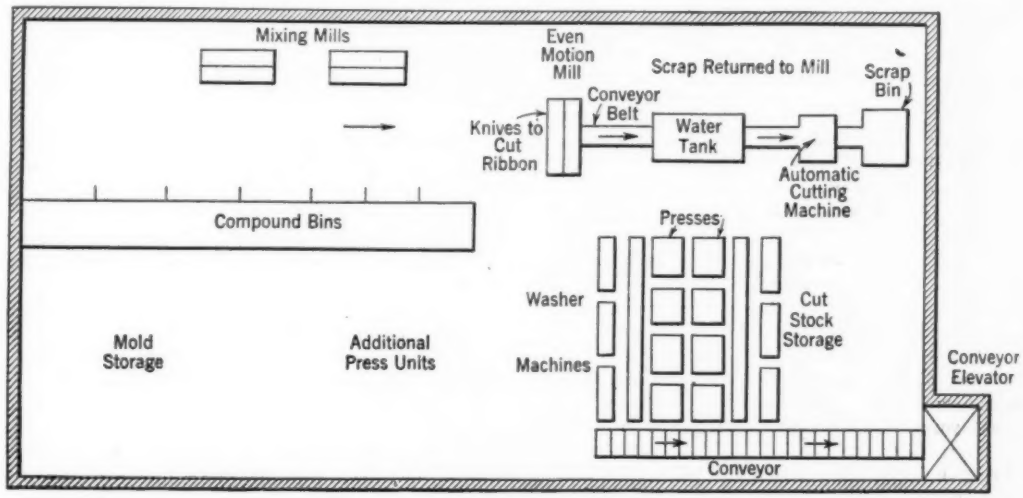
The factor which is most apt to be overlooked in working out continuous production units is the timing of the various machines and processes, resulting many times in a scheme which looks ideal on paper, but becomes a hopeless jumble in practice. On this score it can be said that the layout here described is in actual operation with a few slight variations in at least three rubber companies.

The first continuous unit includes the converting of mixed compound into biscuits for molding. This is done by ribboning the stock to a 4-inch width, and 10/16 gage (for half heels) from an even-motion mill, passing it over a conveyer belt through a water bath, thence into an automatic cutting machine which punches out the biscuits much the same as a punch press cuts steel washers in an automobile plant.

The even-motion mill, with both rolls geared to run at the same speed, is adopted in place of the calender as it requires only one man to operate it instead of a crew. The pair of knives for cutting the ribbon are located on the front roll, approximately in the center, and are adjustable to cut any width of stock required. This ribbon is started on its way by a moving belt suspended over the mill which conveys the ribbon to an iron-mesh chain belt operating in a cold water tank about 10 feet long. The purpose of this water bath is duofold; first, to prevent burning of the stock, as most commercial heel compounds contain DPG or some other organic accelerator; second, to allow the stock to shrink and thus maintain the gage. Proceeding from the water tank, the ribbon enters the automatic cutting machine where the biscuits are punched out, and the remaining stock drops into an enclosed scrap bin containing a truck. As these trucks are filled up with uncured scrap, they are removed, returned to the mill where the compound is reworked with the new mixed stock.

The automatic cutting machine is a very ingenious device. Obviously the die will cut out a biscuit with each revolution, but the real problem is to remove the biscuit. This is done by means of a center plunger which just fits inside the die and operates on a different cam so timed that immediately after the die makes the cut, the plunger pushes the biscuit into the box beneath the machine. Some companies have gone a step further and used this inside plunger as a means of making the biscuit to exact weight, thereby keeping press scrap at minimum automatically. This is accomplished by having the plunger operate slower than the die, thus striking the stock first, squeezing it out to exact gage, in case it is a trifle heavy, before the die makes the cut. The plunger is made adjustable to each size of heel by raising or lowering it to a certain predetermined point, or by attaching auxiliary plates of varying thicknesses.

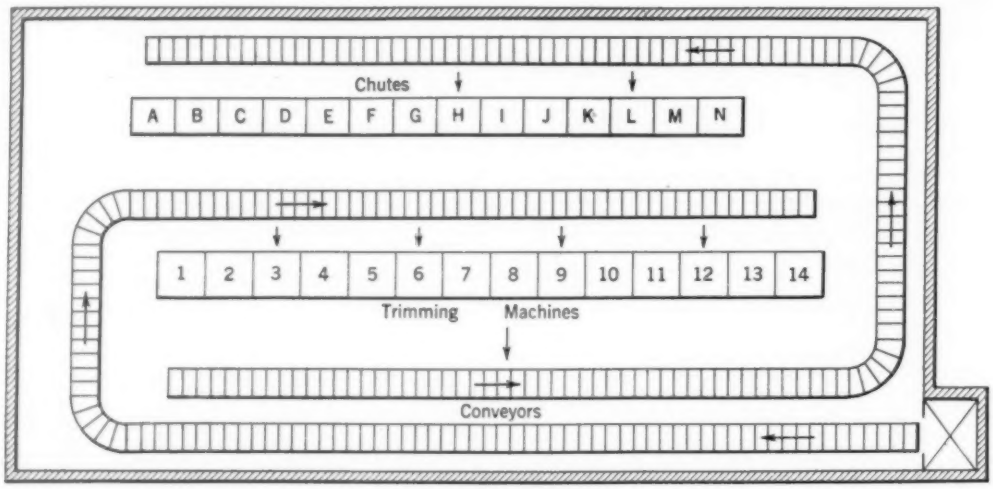
The first break in continuity comes after the blanks are cut. One mill and automatic cutting unit can cut enough heel blanks in 8 to 10 hours to supply from 12 to 16 heel presses operated 24 hours a day. It is obvious, therefore, that the cut stock cannot proceed direct to the presses and be consumed as fast as it is produced. This means that provision must be made in the layout for stock storage. Metal containers of convenient size to hold from 300 to 500 pairs of biscuits are used to transport the blanks. As the boxes are removed from beneath the automatic cutter they are trucked to the storage space and laid out for the next day's production by presses. By using lift trucks, a day's production for



Converting Raw Materials Into Rubber Heels

1ST FLOOR—HERE THE STOCK IS MIXED, MILLED, CUT AND MOLDED. THE HEELS ARE CONVEYED FROM THE PRESSES TO THE TOP FLOOR FOR TRIMMING AND FINISHING.

[1] *The India Rubber World*, February 1, 1925, p. 272.



Trimming and Finishing

4TH FLOOR—HEELS RECEIVED BY CONVEYOR FROM MOLD ROOM IN BOX CONTAINERS ARE TRIMMED AND DELIVERED VIA CHUTES TO INSPECTION TABLES ON FLOOR BELOW.

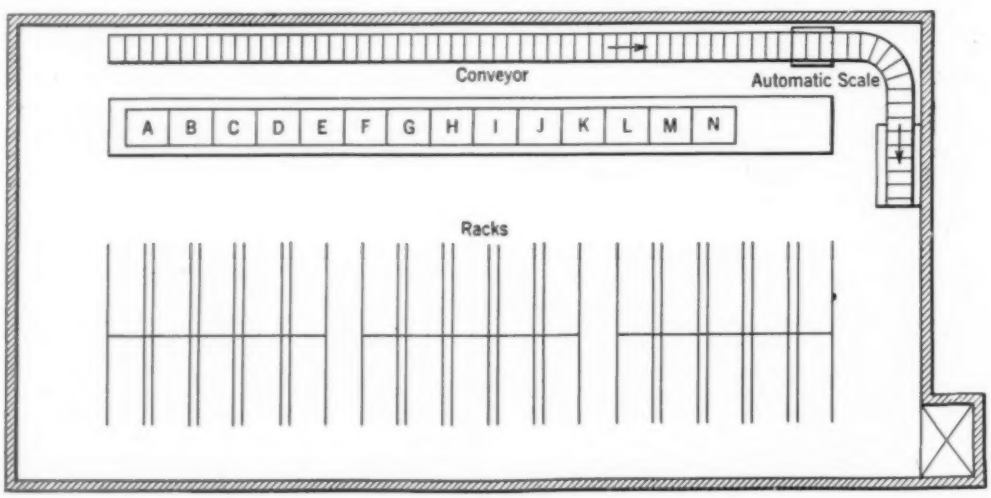
each press can be conveniently loaded on skids, and taken to the press room without rehandling.

Up to this point continuous production has a large saving in labor to its credit. The use of the mill instead of the calender with one man instead of four or five has already been mentioned. On cutting, the old Parsons beam machine produced about 5,000 pairs per day for the average operator. Automatic cutting has been known to produce 5,000 pairs per hour.

While the operation of molding has been speeded up by new compounding materials such as accelerators and the introduction of automatic washer placing devices, the process is not one that lends itself to continuity easily. Nevertheless the matter of press arrangement and layout can be the means of gaining or losing considerable production. Here are some of the factors to be considered: (1) Location of hydraulic levers; (2) height of benches; (3) line-up of press platens with table; (4) device for easy removal of cured heels and overflow; (5) control of pressure and time.

The press table should have a smooth metal top with no projecting nails or obstructions to interfere with easy passage of molds in and out of the press. At each press a drop chute the size of the largest mold should be located a little to the left of the pressman, so that he can punch out his middle die after flipping it over from the mold, and remove the biscuits without handling them. Washer machines should be located so that they are easily accessible. With the use of these machines it is possible to keep four molds in operation, three in the press, and one out, at a 15 minute cure and 5 minute change time. This yields a mold of heels every 20 minutes, or 3 an hour, 72 a day. With 36 cavity men's molds this gives a production of 5,184 pairs of heels per press in a 24-hour day.

From the press room, the cured heels proceed via a conveyer and elevator to the fourth floor for trimming. Here again there is a break in the continuity as time must elapse for the heels to cool off before they can be handled by the girls without danger of blistering or burning their hands. But by allowing sufficient length of conveyer to be provided, the boxes can be kept on the conveyer and passed to the operator without rehandling. Trimming machine



Inspecting—Grading—Packing

3RD FLOOR—HEELS FROM FLOOR ABOVE VIA CHUTES LABELED ALPHABETICALLY ARE INSPECTED AND GRADED INTO FIRSTS, SECONDS, AND WORTHLESS, THEN PACKED AND SENT VIA CONVEYOR TO THE SHIPPING DEPARTMENT.

capacity will vary, from 1,800 pairs per day for slow operators up to 3,000 for exceptionally fast operators.

The new duplex trimmer will be a means of taking away part of this variable in trimming production, as it can be operated by a green operator without the usual danger of cut heels and loss of production. It takes an average of eleven weeks to train a heel trimmer up to the point where she can turn out a full day's production. The principal object of the duplex heel trimmer is to cut down this period about 7 to 5 per cent. This is done because the girl only has to start the heel in the machine, the steel template acting as a guide, which insures absolutely accurate cutting with no damage to the heel or fins to be hand trimmed afterwards.

The trimmed heels are sent to the floor below for inspection and packing via chutes. By means of a push button system the inspecting girls can notify the chute tender when they are ready for more boxes, thus keeping brands, sizes and styles separate. The rate of inspection is another variable as a manufacturer's heels which pack in bulk proceed through this process at a much faster rate than cobblers' which are packed in individual cartons. This necessitates enough leeway in conveyer space between trimming machines and the chutes to take up the slack when there happens to be a run on cobblers' heels, or extra high absenteeism in either division.

The packing and inspecting table runs the length of the third floor. On one side the girls remove the heels from the chutes, stack them for size, examine the face for blisters, the trimming edges for cutting and general appearance, grading into three classes, firsts and seconds, stacked on trays for packing, and the worthless which are thrown in containers beneath the table. The first and seconds are then passed to the other side of the table to the packers who check the count, pack in cartons or bulk, stamp the cases, and send them along via the conveyer to the sealer, who seals the case, weighs it on the conveyer scale to ascertain the shipping weight, and sends it to the shipping room.

On the third floor, considerable space is taken up with racks for broken case lots of the various sizes and brands. It is general practice to keep one broken case of each kind to fill small orders, and as more accumulate, the cases are filled and sent along with the regular production.

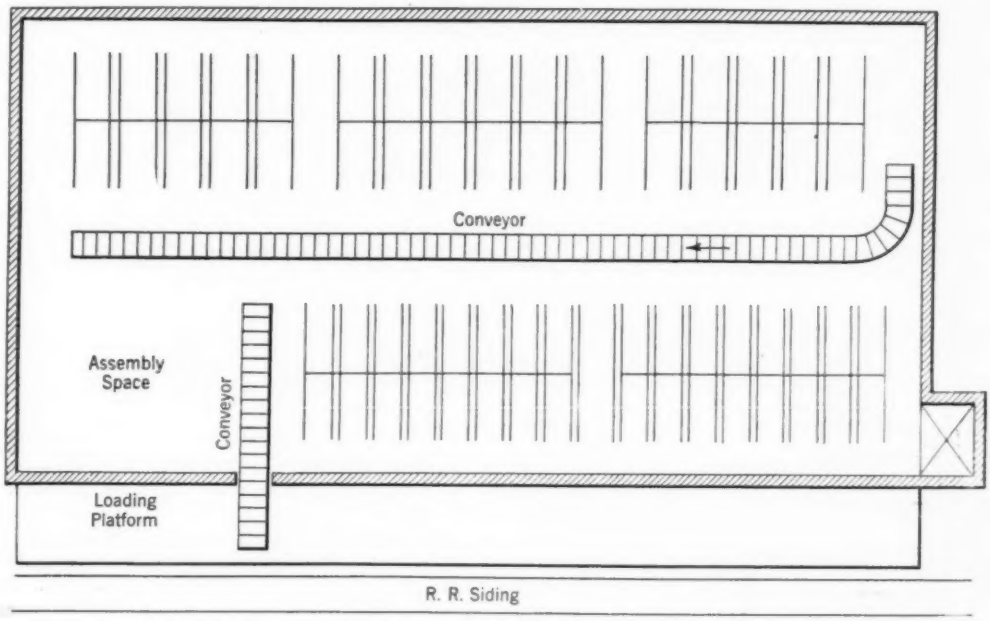
The final scene of productive activity is on the second floor where the goods are shipped. As they pass from the packers via the conveyer to this department they are placed in the proper racks. Orders are filled from these by the shippers who assemble their sizes in a space reserved for the purpose from which point they are again conveyed to trucks or freight cars.

No continuous production unit can be operated efficiently, however, unless the proper study and attention is given to planning the work. To obtain the best output from the mill and automatic cutter unit, it is necessary to make the die runs as long as possible. This necessitates cutting a day's production the day before the molding. Even then it is desirable to have a beam press as auxiliary for cutting odd pairs and as insurance in case of a serious breakdown.

Similarly in the pressroom it is not possible to run all mold equipment in equal production. Small and large sizes must be removed from molding to balance the stock, and other molds run in their places. These changes must be scheduled carefully and accurately so that no heats are lost in making the switch. Arrangements must also be made to remove molds in rotation for cleaning, date coding, and other repair work.

One decided advantage of the continuous trend, if properly capitalized, is to give the worker a greater sense of teamwork. Employes producing in groups, where all pull together to get maximum output and the premium wage, get a chance to visualize themselves as essential units in the general scheme.

Yet as big an improvement as this unit is, the imagination does not have to wander far afield to foresee greater possibilities. Already Ford has passed the stage in cutting out washers from sheet iron. He now has a machine being developed which fashions the part direct with no material waste at all. Similarly there is a chance for the inventive rubber mind to produce a heel blank without cutting and of the exact weight, reducing overflow waste to points never before reached.



Stock Storage and Shipping

2ND FLOOR—FINISHED HEELS PACKED IN CASES, ARE RECEIVED FROM THE PACKING ROOM, VIA CONVEYOR, PLACED IN STORAGE RACKS READY FOR SHIPMENT.

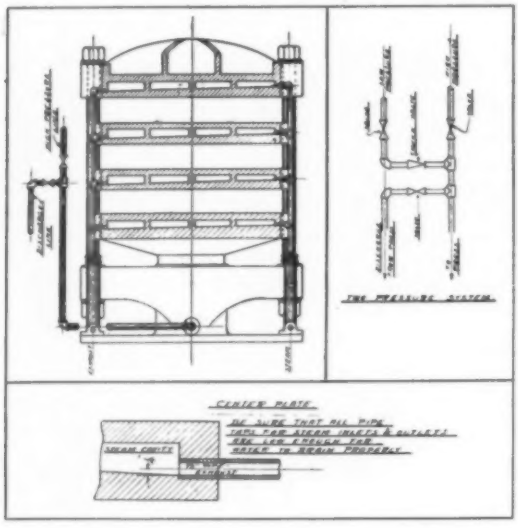
Removing Press Variables

The process of converting raw rubber into finished product involves both chemical and physical changes, all of which have variables of some degree. How far the manufacturer is able to go in eliminating these production hazards is the best measure of the quality of his merchandise.

The quality of molded rubber goods particularly is affected by inconstant press conditions such as condensation in the platens causing a drop in temperature, inadequate boiler capacity resulting in uneven steam pressure, and leaks in the hydraulic system, slowing up press operation and thereby making porous goods. And to make matters worse, articles such as heels, hot water bottles, and soles molded under the above conditions would undoubtedly pass inspection for "perfects," thus passing the failure along to the consumer, which is the most fatal place for imperfect merchandise to be discovered.

There are usually two ways of eliminating trouble in manufacture. The first way is to be safe and sure, by taking extra precautions which help to insure the desired uniformity, yet are costly in themselves because they retard production. For instance, if the steam pressure drops during a heat, the cure can be prolonged to approximate the loss. The second method is to obtain the desired quality insurance by installing the best equipment and machinery obtainable, which gains the desired end without increasing the manufacturing cost. Along this line, the accompanying illustration offers an interesting press hook-up designed to improve press drainage and eliminate condensation in the platens.

Among its features are the following: (1) The steam cavities in the platens are graded so that the inlet is much smaller than the outlet, making it impossible for any condensation to collect at the



Utility Mfg. Co.

Improved Piping System for Vulcanizing Presses

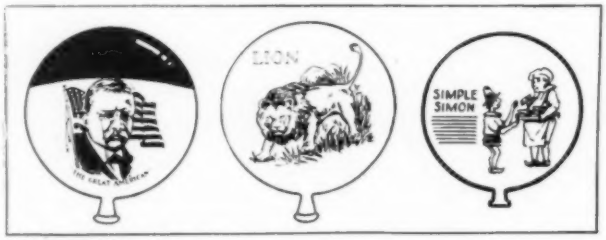
bottom. (2) The outlet is tapped so that the pipe does not form an obstruction when screwed into the platen. (3) The multiple expansion joints permit condensation or cooling water to drop directly down from the platen, hence the platen should always be dry. (4) Steam is passed across each platen and out, not down from platen to platen, insuring an equal temperature in each platen. In the latter method, the bottom platen gets all the condensation and will usually be found to be three or four degrees cooler than the top one.

These developments serve to enforce in the mind of the manufacturer attention to the oft-neglected matter of press drainage, which might conceivably be the cause of troubles attributed to compounding or raw materials. In other words, there is a vast difference in how a compound will mold under full temperature and pressure conditions and under imperfect ones.

Free the pressroom foreman from worry about steam pressure, condensation, and hydraulic pressure, and he can devote his entire time to important matters such as overflow waste, mold cleaning, and general supervision. This often makes the difference between ordinary merchandise and the distinctive variety of rubber products.—*The Oak Rubber Co.*

Printing on Rubber Balloons

The newest method of printing on toy balloons or similar inflatable dipped goods affords clearer and more permanent results than by the use of an ordinary electrotype and printers' ink. The work is done by hand impression using as ink a thin, colored rubber cement and a deep-cut zinc etching. The latter is very



The Oak Rubber Co.

Types of Printed Balloons

similar to the ordinary electrotype except that it is made considerably deeper and consequently proportionately clearer.

For printing the usual size of balloon, a cut 3½ by 4 inches is suitable. It is mounted on a wood base and provided with a handle after the manner of a rubber hand stamp. The inking pad is made by covering one side of a piece of wood 1 by 6 by 8 inches with smooth felt about ⅛-inch thick. The ink is made from ordinary pure gum rubber cement, into which is stirred the highest grade of oil soluble color dissolved in naphtha. The proportions of cement and color solution are approximately 2 pints of cement to 1 pint of dissolved color with the addition of 2 tablespoons of paraffin into the heated mixture. The heating must, of course, not be done by fire but by steam or electricity to avoid explosion. The pad is impregnated with the ink thus prepared and used in connection with the hand stamp described.

The balloon is partially inflated sufficient to cover the printing plate. The ink impression is made as follows: Holding the inflated balloon in one hand the zinc cut is inked on the felt pad and applied to the rubber. Care and judgment is required to make a clear and even imprint against the yielding surface as it is flattened against the type. When the printing is done the balloon is deflated and laid aside to dry with the impression uppermost. After drying about 10 minutes the balloons are lightly dusted with talc in a tumbling barrel to remove the tackiness from the impression. If when inflated for printing a balloon is out of shape or is not smooth as before inflation, gently warming it over a source of heat will remedy the matter.

The perfection of the printing is dependent on the skill of the operator gained only by experience and the exercise of judgment in handling the electrotype, the ink and the inflated article. Balloon printing is usually done by a girl selected for her aptitude for the work and capable of developing the skill for sustained good results. Mastery of the details requires but a short time and the results are highly satisfactory and permanent.

Super-Rubber Trees

Science and Art in Plantation Rubber

Vincent Sauchelli, B.Sc.

THE illustration you see here represents a scientific phase in the rubber plantation industry which indeed is historical, in that it is associated with an important transition in the art of rubber planting.

The men in the photograph are specially trained Javanese employed on a progressive rubber estate in Sumatra. They have been trained in the art of bud-grafting superior strains of Hevea rubber trees. This is the latest application in an unexpected field of a practice long familiar in horticulture. The operation is delicate and had to be studied out and experimented with a long time before a technique was devised for estate conditions.

Goodyear Tire & Rubber Co.

Bud-Grafting Hevea in New Plantation, Sumatra

The following story may serve to give briefly a sketch of the kind of agricultural practice which prevailed in the far eastern estates during the early history of the rubber plantations. No reflection is meant on the splendid, devoted, hard working planters of the Middle East who had to work under such trying conditions and in such haste. The reference serves, like all fables, to point a moral.

A True "Fable"

This may sound like a fable. But it is a true one, if you please. A farmer had an apple orchard. He wished to enlarge it. To increase his trees he used what stock he had. His orchard had been inherited and the trees represented several dozen varieties, good, bad and indifferent. From the better specimens of these mixed trees he collected seed and planted them in a seed bed. Then those seeds which germinated after a set time were used and the rest discarded.

The young seedlings were then planted according to system, say 7 by 15 feet. When the trees began to bear, he decided they were too crowded, so he thinned out half. But the trees thinned out were selected not by merit but with a view to considering the planting distance as much as possible. As to choosing by variety, or vigor of growth, or immunity to disease, such things either never occurred to him or were passed up as impractical. And so he enlarged his orchard.

Perhaps you are not a farmer; but how soon does your common sense tell you such methods would send the owner to the poorhouse?

And yet, that is in effect the method by which the great rubber plantations of the Far East were planted. But times change.

Booms vs. Sound Planting

During the exciting days of the rubber boom just before the Great War, hundreds of thousands of acres were planted with Hevea rubber in feverish haste and carelessness. The financiers and investors wanted speedy money returns on capital invested, regardless of sound agricultural practice. As a result many costly mistakes had to be expected.

Rubber plantations at one time were looked upon as forests where forestry practice should prevail. Today, in the more enlightened quarters, a rubber plantation is looked upon as a huge orchard. The scientific side of the industry is fast making its influence felt and is winning over the practical planter to accept its findings. One of these findings is the scientific breeding of superior strains of rubber trees by recognized principles of horticulture. That it is practical and meets the pragmatic test is proved by our photographic illustration.

Artificial Propagation of Hevea

The procedure followed by estates in the artificial propagation of superior strains follows somewhat this order:

A number of the oldest trees grown under similar conditions of soil and climate as those of the new plantation are selected. These old trees are kept under observation a long period and their yield and disease resistance studied and recorded. If they are on high land with well-drained soil their offspring are presumed to do equally well, grown under similar conditions of soil and altitude. The same rule holds with respect to all low land.

Only those trees which have resisted disease attacks successfully are chosen as parent trees. Other things being equal, if the tree whose rubber yields are high is also proved to be a type immune to disease, it is the one preferred for breeding. Yield and disease resistance are thus determining factors in their selection.

Of the methods of artificial breeding, that of grafting buds obtained from selected trees has proved more practical than seed selection or cuttings.

The technique used is similar to bark grafting as used in our pecan and walnut orchards. Having first selected the parent tree after a long series of observations and measurements as to yield and disease resistance, the work of budding begins. You know branches all have dormant buds. One man is detailed to cut off some of the younger branches of the selected trees to serve as bud material. In the meantime, a nursery will already have been prepared and bud-grafting operations take place when the nursery plants are about an inch in diameter at the base.

In performing the budding operation, a small oblong patch of bark is removed from the base of a nursery plant. Using this as a model a similar patch having a bud in the middle is cut from a branch. Care must be taken to prevent rubber milk or latex from flowing upon the exposed surface of the bud patch. The bud patch is now placed in the exposed oblong surface of the nursery plant, and gently stroked to force out moisture from the cambium beneath. When the bud patch is in place it is tied firmly with paraffined cloth. This is for the purpose of keeping out air and moisture and also to prevent the union from drying out.

In the picture the man in the middle is shown tying a bud patch with a strip of cheesecloth which has been soaked in paraffin. The man on the right has just finished the budding

operation. The work has to be done quickly and great care is required to keep hands, cutting knife, branch and patches clean.

After a fortnight the cloth is removed and the patch examined to see whether it has united with the young plant. If it is a success part of the top above the patch is cut off to force growth into the budgraft. Another practice is to girdle the plant at two inches above the patch. A week later the tree is cut or "stumped" at this height and transplanted to its hole in the new plantation. The subsequent treatment is the same as for any transplanted seedling.

To do this work on a great scale requires skill, patience and organization. Each move must be done with precision. The coolies employed must be of superior intelligence and must be made to appreciate the delicacy of the operation.

What of the Future?

Science is thus revolutionizing a great industry. These newer estates with selected stock will, it is expected, yield twice to three times as much rubber per acre as the plantations of unselected stock. Overhead charges will thus be reduced and a source of high grade rubber ensured to future generations.

Rubber Washing a Recurring Cycle

In the old days, a sight-seeing trip through a rubber factory always started with an inspection of the Pará biscuits soaking in a tank of water and the washing of the rubber. Even drying by mechanical means was unknown, and many of the older rubber workers and executives recall the huge rooms on the top floor of their factories where the sheets of washed Pará were hung for months at a time to dry on rafters.

Then came vacuum drying, and plantation rubber. Gradually the washing units became less and less a factor in the general

The B. F. Goodrich Co.

Soaking Tanks for Wild Rubbers

scheme. In fact many of the new small mills constructed in the last ten years have no provision for this process.

The scarcity and high price of plantation rubber last year, however, caused a revival of interest in the wild rubbers, and washing rubber became once more a necessity. The native smoking process does not produce as uniform a quality of hardness in the crude, which makes it necessary to soak the rubber in tepid water before putting it through the washing mill. The tanks shown in the accompanying picture illustrate the hot and cold water connections to control the water temperature and the biscuits of Pará soaking therein.

Upon removal from the tanks, where much loose grit is already washed out, the biscuits are sliced to detect the presence of foreign substances which would injure or break the washing mill, and fed into the bite of the rolls which are tightened close together. A stream of warm water flows between the rolls from a pipe connection directly over them, and the rubber is worked through many times until the operator determines that it is clean.

American Automobile Industry and Tire Production—1925

That there is no abatement in the output of passenger cars and trucks is evident after a study of the data appearing in *Facts and Figures of the Automobile Industry*, 1926 Edition, prepared by the National Automobile Chamber of Commerce. The combined production of passenger cars by the United States and Canada rose from 3,243,285 in 1924 to 3,839,302 in 1925, the corresponding figures for truck output being respectively 374,317 and 497,452. The wholesale value for 1925 of these cars and trucks reached $2,977,904,833 or $2,523,642,558 for the cars, and $454,262,275 for the trucks. The value of parts sold by motor vehicle manufacturers was estimated at $308,830,130, while that for replacement parts and tires was $923,440,000. United States capital invested during the past year in the motor vehicle manufacturing business is said to have been $1,888,028,810 as against $1,691,050,112 for the year previous. An important development of 1925 was the increased demand by foreign countries for motor vehicles, exports from the United States and Canada numbering 536,741, or a gain of 39 per cent over 1924.

Registration during 1925 included a total of 19,954,347 motor vehicles, or 17,512,638 cars and 2,441,709 trucks, a gain of 14 per cent over the year preceding, and 12 per cent advance in production. There are now 24,564,574 motor vehicles in the world, 19 per cent of this total being in foreign countries. Of this amount the United States supplied 87.5 per cent, Canada, 3.5 per cent, other manufacturing countries being in the following order: France, England, Germany, Italy, Belgium, Czechoslovakia, Austria, Spain, Switzerland, Hungary, Sweden, and Denmark.

Of the 386,000 tons of crude rubber consumed by the United States during the past year, 83 per cent was utilized by the motor vehicle industry. The following tables prepared by the Rubber Association of America are of especial interest:

RUBBER PRODUCTION, CONSUMPTION AND EXPORTS

Figures in first three columns from Rubber Association of America; Middle East figures from United States Department of Commerce

Year	World Production Plantation and Wild	World Consumption	United States Consumption Plantation Rubber	Net Exports Middle East* British	Net Exports Middle East* Dutch
1915.....	158,702	156,113	96,800	96,095	17,811
1916.....	201,598	134,826	116,500	128,010	30,443
1917.....	265,698	224,375	157,400	175,382	44,889
1918.....	296,579	236,358	163,700	136,926	43,345
1919.....	326,860	317,628	211,100	257,484	88,189
1920.....	343,731	298,435	203,400	226,081	75,522
1921.....	293,960	285,752	178,900	200,959	72,227
1922.....	379,920	412,493	299,000	271,589	102,171
1923.....	412,771	454,891	319,700	237,434	137,158
1924.....	421,217	475,841	337,200	205,027	175,298
1925.....	515,947	550,000	386,000	223,000	190,000

* Owing to rapid increase during the last four years in exports of wet native-grown rubber from Dutch East Indies, practically all of which goes through Singapore for remilling, and on which there has been a heavy shrinkage, the Dutch exports as given above are too high, and the British exports too low, by the amount of this shrinkage. An exact division between the two countries is impossible.

TIRE PRODUCTION AND SHIPMENTS

Tires	Production 1924	Production 1925	Shipments 1924	Shipments 1925
High pressure	46,000,000	40,087,529	45,938,000	39,863,384
Balloons	*5,633,000	20,756,858	*4,735,000	19,504,182
Solid and cushion....	910,000	1,011,866	896,000	1,067,193
Inner tubes†.....	70,705,000	82,614,034	68,100,000	80,992,012

* Ten months. † Includes balloon inner tubes.

What the Rubber Chemists Are Doing

New Mechanical Test for Rubber Insulation[1]

By C. L. Hippensteel[2]

THE service conditions and requirements for rubber insulation for aerial wire are obviously different from those for mechanical rubber goods, tires, etc., which are subjected to constant wear, repeated stressings, high pressure, and exposure to heat, oil, or water.

Generally speaking, the important requirements of insulation are continuity to insure against any external electrical contacts; centralization of the conductor in the insulating material, especially in the case of thin-walled insulation; resistance to cutting of the wire through the insulation where it rests against glass or porcelain insulators or where one wire crosses another in a twist; resistance to cracking when bent; and particularly resistance to aging in which climate plays an important part.

Often special requirements, both mechanical and electrical, are set in particular cases. The serviceability of rubber insulation may be considerably affected by other elements of the finished wire. Thus, such insulation is commonly protected from injury by a textile braid, and, in the case of outside wire, the braid also carries a wax weatherproofing compound, which protects the insulation to a considerable degree from the action of light and oxygen.

On the other hand, the waxes of the weatherproofing compound may tend to diffuse into the insulation, thereby softening it and diminishing its resistance to cutting. The test described in this paper depends on this resistance to cutting.

Tensile strength tests are often made on test strips of the wire insulation. Unless the wire or cable is very large, the insulation tube is so small that the familiar elongated dumb-bell specimen cannot be obtained from it, even though the insulation is first slit, removed from the conductor, and laid flat. In the case of smaller wires such as are used in telephone installations, modified forms of test specimens are used, such as tubes of the insulating material from which the conductor has been removed or a tangential specimen sliced from one side of the wire. However, such specimens are not entirely satisfactory, as they do not have the enlarged cross section at the ends which is essential to satisfactory gripping in the tensile machine. This is especially true of highly distensible materials, and such a method is not commonly regarded as applicable to compounds containing more than 30 per cent of raw rubber.

With lower grade materials the results are subject to considerable variations because of the small cross section of the specimen and the low strength of the materials. Also, the preparation of such specimens involves a large element of personal skill, and slight imperfections in the specimen may cause misleading results. Furthermore, the time required to prepare the specimens, make the measurements, and calculate the results into specific values is considerable. Nevertheless, the results of the tensile tests on modified forms of test specimens may be of considerable value. However, it is not always clear just how such results may be related to the performance of insulated wire under certain special conditions of compression which the insulation is required to withstand in service, such as the tendency of the conductor to cut through the insulation.

The Bell System, large users of rubber-covered aerial wire, employs a more rapid test suitable for inspection purposes as a criterion of the ability of the rubber insulation sufficiently to resist cutting by the underlying conductor. This test, called a "penetration test" (sometimes known as a "hardness test"), is as follows: The rubber insulation shall resist being cut by a taut steel wire of definite size resting on the insulation at right angles to the conductor when a specified load is applied for a specified time. Establishment of electrical contact is used to indicate complete penetration of the cutting wire. To judge whether or not the insulation is too brittle for satisfactory service, it is given a wrap test. That is the wire, after the braid is removed, is wrapped about itself three times, left for 16 to 24 hours, and rewound again in the reverse direction. The insulation is required to show no signs of rupture.

The penetration and wrap tests are not entirely satisfactory. Neither test affords a numerical measure of the relative quality of one sample as compared with another, and consequently we are unable to detect reliable samples which may be close to failure and which would probably fail after a relatively short life, owing to the gradual deterioration due to natural aging processes. The final answer is obtainable only after a period of aging during which the penetration test is applied at set intervals.

An endeavor was made to provide a means of expressing the results of the penetration test in numerical terms, either by noting the time required to cut through the insulation under a given load or by determining the load required to cut through in a given time. In both cases a high degree of inconsistency was observed. The inconsistencies are attributed partly to actual variations in the physical properties of the material underlying the wire in successive repetitions of the test.

Thus, one of the inherent defects of this penetration test is that the sample submitted to test is very small, being limited to rubber lying immediately under and about the cutting wire. Consequently, variations in resistance to penetration may be due to single filler particles or aggregates of filler particles forming hard spots, or to soft spots caused by localized high concentration of wax or other softeners. Also, part of the quantitative inconsistency of the penetration test is due to failure to make a positive electrical contact, even when the rubber wall is cut, on account of the presence of reaction products of the insulating material with the metal.

A 2-inch length of insulated wire, preferably after removal of the braid if there is any, is compressed between steel blocks with parallel plane faces which are made to approach each other gradually at a uniform rate. Means are provided for reading or recording the pressure on the insulation and its thickness simultaneously. In making tests of this sort a very characteristic performance is observed. As the blocks or jaws approach each other the insulation is compressed around the conductor into an elliptical form, thus subjecting the thin films of rubber between the wire and the faces of the jaws to a stress which ultimately causes rupture. During this process the pressure rises at first slowly, then rapidly till the film ruptures and the conductor is suddenly exposed. At this point the pressure drops off sharply and indicates that rupture has occurred. If the insulation does not fail on both sides at the same time, then there will be two maxima of this sort.

The compressive load at the maximum point is a numerical measure of the ability of the insulating compound to resist cutting by the conductor. Values of as much as 1,100 to 1,200 pounds have been recorded for certain medium grade insulations. It is found also that the insulating film is very thin at the time of rupture in the case of a high-grade resilient compound, but in the case of a brittle compound the rupture occurs before the rubber has undergone much reduction of thickness. This relation between thickness at break and brittleness of the compound seems to afford

[1] Presented before the joint meeting of the Division of Rubber Chemistry and the Akron Section of the American Chemical Society, Akron, Ohio, February 22 and 23, 1926.

[2] Bell Telephone Laboratories, Inc., New York, N. Y.

a measure of the ability of the insulating compound to stand severe bending. Unfortunately, there have been available very few samples of wire which failed in a wrap test, but in those few cases the thickness at rupture was much greater than normal.

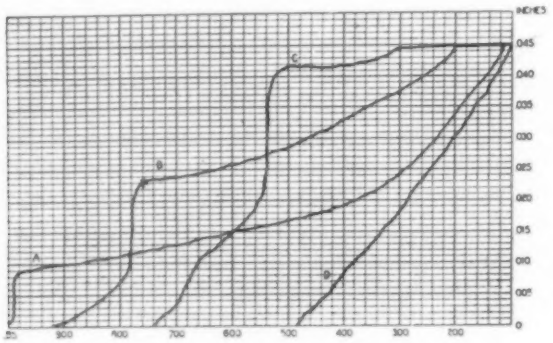
By this method a much greater portion of insulation is tested than by the penetration test, and in a way which is believed to be closely comparable with the conditions of strain occurring in the insulation at points of support, etc., when in service. The samples can be prepared and the tests made in a reasonably short time and, therefore, it seems feasible as a routine inspection test. This test has the additional merit that it can be applied to the insulation in place on the wire rather than to a fragment of the insulation.

The machine adopted for this test is self-recording and easily portable. The load is applied by means of the screw through a heavy compression spring inside the cylinder to the upper jaw. The deflection of the spring under load causes a proportional rotation of the cylinder by means of a rack and gear. The simultaneous changes in load and thickness can therefore be followed during a compression test by the line produced by the recording needle on an appropriately arranged chart, such as is here illustrated. In fact, a sort of stress-strain curve is plotted.

In making a test the chart is placed in a fixed position on the cylinder, such that when the jaws are just closed on a bare conductor without pressure the needle indicates zero load and thickness. A 0.033-inch movement of the recording needle vertically indicates a change of 0.001 inch in thickness of the insulation under compression. A movement of 0.3 inch horizontally on the surface of the rotating cylinder indicates a change in pressure of 100 pounds. Rupture of the insulation is indicated by a sudden drop of the needle, such as will be observed in Curve *B*. The cross indicates where rupture occurred.

After compressing a sample in one direction a test may well be made on an adjoining section after rotating the wire through an angle of 90 degrees. Divergence between the two curves tends to indicate the degree of eccentricity of the conductor with respect to insulation.

The accompanying graph shows typical curves that are obtained for different classes of rubber or other insulating compounds. Curve *A* is typical of a highly distensible, high-grade rubber compound. Curve *B* is typical of the average run of rubber-covered aerial wire compounds, such as have been tested in the



Stress-Strain Curves of Insulation on Wire

work to be described later. Curve *C* is typical of a brittle compound, and Curve *D* shows the type of curve which may be expected if a soft, semiplastic rubber compound or cold-flowing insulating composition other than rubber is tested. In the last case there is no point of sudden rupture, but the insulating material is gradually pushed away from the conductor.

Conclusion

On the whole, the results are consistent and intelligible, but the machine in its present form has some mechanical defects, and a redesign is contemplated. Better insurance of mechanical stability over long periods of use of the machine and increased sensitivity as regards measurement of thickness at rupture are desirable. It should be understood that the values for load at rupture will vary, not only with the quality of the compound, but also with the dimensions of the wire, so that ultimately suitable standards will have to be set for different sizes of wire to be inspected.

High and Low Stiffening Carbon Blacks[1]

By Ellwood B. Spear and Robert L. Moore[2]

Until recently it was generally believed that carbon blacks exhibit a pronounced stiffening effect when incorporated in a rubber mix. In this article it is shown that carbon blacks differ greatly in this respect and that they may be divided roughly into two main classes, one of which has a reënforcing effect much greater, and the other equal to or even less than, an equal volume of ordinary zinc oxide such as is used in the rubber industry. This difference is so great at times that, although two rubber stocks, each containing 14 volumes of a different black on 100 volumes of rubber, may have approximately the same ultimate tensile, the tensile value at 500 per cent elongation may be twice as great in the one case as in the other. It follows, of course, that the per cent stretch at break must be much greater in the stock having the lower tensile at 500 per cent elongation.

This remarkable difference in stiffening effect is exhibited to an even greater degree when the respective carbons are ground into a mineral oil vehicle, such as is suitable for making news ink. Here the rate of flow from a given orifice may be almost five times as fast in one case as in the other.

The wetting equivalent of carbon black, an arbitrary term which is defined below—is a fairly reliable index of the stiffening power in a rubber mix. These relations are by no means exact, but qualitatively they are often useful. The wetting equivalent values demonstrate in general that carbons may be divided by this means into a high and low stiffening class.

The wetting equivalent values represent the number of cubic centimeters of a neutral, pale yellow, raw linseed oil that must be added to 100 grams of a given carbon so that the mass may be pressed into a coherent ball similar to a stiff, dry putty. The oil is added from a buret in small portions at first and finally drop by drop toward the end of the titration. The small balls of carbon and oil are squeezed out and the mass pressed as much as possible with a flexible paint knife. The end point is fairly sharp, being 2 to 3 drops for 5 grams of carbon. These values are not identical with the oil absorption number so often used for paint pigments.

The oil absorption number is often the same as the wetting equivalent when the carbon is very compact and has a very low oil absorption. The oil absorption number is entirely misleading, however, when the carbon is very fluffy, because it is impossible to avoid adding too much oil before the end point is reached. The little balls of carbon will remain dry on the outside, but the interior will be soaked with oil where the pigment is very light and fluffy, sometimes making the oil absorption number twice as great as the wetting equivalent. The wetting equivalent is much more nearly indicative of the stiffening power in rubber than is the oil absorption number. The wetting equivalent is not an infallible guide, however.

Observations with the Microscope

Work with the microscope using very thin sections of carbon black rubber stocks indicates a definite relation between the dis-

[1] Presented before the joint meeting of the Division of Rubber Chemistry and the Akron Section of the American Chemical Society, Akron, Ohio, February 22 and 23, 1926.

[2] Development Laboratories, Thermatomic Carbon Co., Pittsburgh, Pa.

tribution of the carbon in the rubber matrix and the ultimate tensile, but it fails to show that the size of the particles or aggregates of carbon has any bearing on the stiffening effect.

Conclusion

From these and other observations which the writers hope to publish later, it is concluded that the whole story of the stiffening power of pigments has not yet been told. Particle size in the rubber mix is undoubtedly a factor, but this does not predominate to the extent that other conditions yet to be satisfactorily explained may be disregarded. Carbon black is a complex substance physically, containing particles and aggregates which differ greatly in size and probably also in shape. That the portion of the carbon which causes the high tensile in a rubber mix is probably not the portion that is responsible for the stiffening effect. It is also quite possible that a third portion takes no part in either the reenforcing or the tensile, but acts merely in the capacity of a diluent. Perhaps work on the fractional precipitation, flotation, or dialysis of carbon black may throw some light on this interesting and important phase of the subject.

Chemical Patents

The United States

1,579,890. MANUFACTURE OF FELT. Rubber articles having a basis of felt are made by impregnating the fibers with rubber latex during felting, coagulating the latex and subjecting the resulting material to pressure and drying.—Robert B. Russell, Manchester, and Herbert Bloomfield, Stockport, both in England.

1,579,925. FIBROUS MATERIAL. An absorbent composition of fibers and partially coalesced particles of prevulcanized rubber.—John O. Goodwin, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,580,089. VULCANIZATION. A method comprising admixing caoutchouc with a vulcanizing agent, incorporating nitrocarbazole therein, admixing an accelerator and applying heat.—Dexter N. Shaw, Philadelphia, Pennsylvania, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio.

1,580,966 and 1,580,967. MOLD LUBRICANT. This is water insoluble sugar cane wax resistant to the absorption of rubber at the temperature of vulcanization.—Benton Dales and William S. Cable, Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y.

1,581,823. PROCESS OF UNITING RUBBER AND METAL. This consists in applying to the surface of the metal a gas eliminating agent, and a flux against which vulcanizable rubber is applied and cured.—Robert M. Withycombe, Sydney, New South Wales, Australia.

1,582,416. COATED FABRIC. The process comprises applying a base coat of rubber composition to a suitable backing fabric, forming elevations and depressions in the base coat, and depositing a coating carrying coloring matter in these depressions while leaving the elevations uncoated.—Jesse H. Mason, Roselle, assignor to Duratex Corporation, Newark, both in New Jersey.

1,583,191. WATERPROOFING COMPOUND. This compound consists of para-cumarone in the proportion of 5 parts, dissolved in 8 parts of high flash naphtha and diluted with 18 parts of gasoline, 10 parts of paraffin dissolved and melted in 64 parts of gasoline, and 10 parts of rubber cement diluted with 10 parts of gasoline, all mixed together.—Clarence D. Shaffer, assignor to Textile Leather & Metal Preserver Co., both in Kalamazoo, Michigan.

1,583,493. WATERPROOF COMPOSITION FOR GLOVES. A coating composition comprising 95 per cent of ordinary rubber dry patching cement dissolved in 5 per cent of a mixture of equal parts of rosin and benzine, and sufficient benzine for thinning the solution to the consistency of ordinary table syrup.—Francis M. Reed and Charles Paulsen, Minden, Nebraska.

1,583,703. COATING COMPOSITION. A flowable liquid composition comprising nitrocellulose, fluxed hard rubber, and a liquid solvent for these ingredients.—Samuel E. Sheppard and John Schmitt, assignors to Eastman Kodak Co., all of Rochester, New York.

1,583,704. ELECTRO-DEPOSITING RUBBER UNDER GAS-REMOVING CONDITIONS. The process of depositing organic material on a gas permeable anode surface by bringing this surface into contact with an electro-conducting aqueous suspension of the organic material. Then passing a depositing electric current through the surface and suspension. The cement density is such that gas is evolved adjacent to the surface and is removed from the rear of the surface.—Samuel E. Sheppard and Leon W. Eberlin, assignors to Eastman Kodak Co., all of Rochester, New York.

1,583,761; 1,583,762 and 1,583,763. ACCELERATORS OF VULCANIZATION AND PRODUCT. The use of thiodiazol as an accelerator in hot vulcanization of rubber.—Louis B. Sebrell, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

The Dominion of Canada

259,475. PLASTIC MASS. Process for production of plastic rubber masses and articles, varnishes and solutions for dipping, adhesive and impregnating purposes comprises employment of esters of tetra-hydronaphthal as non-volatile solvents and also addition of cellulose esters and the use of volatile solvents.—Rudolf Garke, Eberhard Meyer, Troisdorf, and Walther Claasen, Koln, co-inventors, all in Germany.

260,246. METHOD OF PRODUCING ACCELERATOR. Method of making tri-substituted guanidine, which comprises admixing basic lead carbonate with a thiourea, adding aniline, applying heat and collecting the guanidine thus produced.—The Goodyear Tire & Rubber Co., assignees of Louis B. Sebrell, both of Akron, Ohio, U. S. A.

260,248. METHOD OF VULCANIZATION. A process for accelerating the vulcanization of rubber by vulcanizing the rubber in the presence of the reaction product of an aromatic disubstituted guanidine and 2-mercaptobenzothiazole.—The Goodyear Tire & Rubber Co., assignee of Cecil E. Boord, Columbus, Ohio, and Edwin N. Cole Coolidge, Wilmington, Delaware, U. S. A.

The United Kingdom

246,835*. LUMINOUS RUBBER. Hard or soft rubber articles are rendered luminous by a solution of rubber to which after drying is applied a paste made by rubbing down a self luminous material in a rubber solution as nearly colorless as possible. The articles may be heated at temperatures lower than that at which the luminous material is effected.—K. G. Baur, 31 Bridge street, New York; J. Goldschmidt, 4 Neuenbergerstrasse, and K. Arndt, 5 Spreesstrasse, Carlottenburg, both in Berlin, Germany.

247,038. COATING EBONITE. A hard skin is formed on the surface of ebonite articles by forcing Japanese lacquer into the surface of the rubber.—R. Namiki, 1693 Miyastrita, Sugamo-Macli, Kitatoyoshimagun, Tokio, Japan.

247,136. ADHESIVES. An adhesive consisting principally of either a tough balata-like isomer or a hard friable shellac-like artificial isomer of undissolved rubber, or a mixture of these isomers. These substances may be obtained by heating rubber with various isomerizing agents, particularly sulphonic substances. They are used in admixture with softeners such as tung oil, castor oil, mineral rubber, naphthalene, and Canada balsam, with or without additional substances such as shellac, resins, rubber, etc. They may also be used in benzol solution. A small proportion of age resister may be added. A typical example consists of 86 parts of the balata-like isomer, 3 parts of aldol-alpha-naphthylamine, 1 part of benzol, and 10 parts of tung oil.—The B. F. Goodrich Co., New York, assignees of W. C. Geer, Akron, Ohio, both in U. S. A.

247,238. BITUMINOUS JOINTING FOR RUBBER PAVING. In an example, 80 parts by weight of a bituminous soap containing 50-80 per cent of its weight of bitumen, 20 parts of lime, cement or plaster, with or without 10-20 parts pulverized rubber, and 10-20 parts of sand, stone dust, etc. This mixture is mixed as a mortar which may be applied to the concrete foundation, and after the blocks are placed is broomed into the joints.—L. S. Van Westrum, 64 Victoria street, Westminster.

247,712. RUBBER COMPOSITION. Finely ground carbonized peat is used as an ingredient in rubber composition. Suitable proportions are 25-35 parts by weight of carbon to 100 parts of rubber.—Count L. LeW. Hamon, 21 Park Square, Portland Place, London.

247,841. PLASTIC COMPOSITION FOR PRINTING SURFACES. The under soft layer consisting of 10 per cent rubber, 10 per cent sulphur, 5 per cent factis, 5 per cent linseed oil and a loose filler such as sawdust, ground paper, or cork. The upper hard layer may contain fillers such as chalk or zinc white.—C. Jaek, 20 Volckerstrasse, Ottensen, Altona, Germany.

248,033. RUBBER FAVING COMPOSITION. Aluminous cement is gradually added to rubber latex which has been vulcanized, or merely mixed with vulcanizing agents, and the composition is mixed until it becomes a paste which is poured into molds, or spread on a surface and rolled after setting.—S. M. Kirkpatrick, 3 Broomhill avenue, Glasgow.

248,113. VARIEGATED CELLULOSE COMPOSITION. Fillers, oils, rubber, bitumens, resins, etc., are employed in the composition of plastic compositions containing cellulose derivatives.—V. Plinatus, 14 Rue Royer-Collard, Paris, France.

248,374. REPAIR STOCK FOR RUBBER ARTICLES. A suitable accelerator solution for repair work consists of 90 parts raw rubber, 6 parts zinc oxide, and 4 parts of isopropylxanthate of zinc. This mixture is dissolved in 6 parts of benzol. The rubber jointing mixture may consist of 82 parts of rubber, 5 parts of zinc oxide, 3 parts of accelerator, and 10 parts of red antimony free from sulphur.—Soc. Anon. des Pneumatiques Dunlop, 64 Rue de Lisbonne, Paris, France.

248,406. RUBBER SOLING COMPOSITION. Felt is impregnated with caoutchouc of different degrees of vulcanization.—P. Barta, 208 Sauerhof, Baden, near Vienna.

* Not accepted.

Germany

427,873 (March 20, 1921). Method of making colored rubber goods. I. G. Farben-industrie A.-G., Frankfurt-am-Main.

428,058 (October 18, 1922). Method of making plastic, celluloid or rubber-like masses or varnishes. Dr. Eberhard Meyer, Troisdorf b. Köln-am-Rhein, and Dr. Walther Classen, Hansaring 4, Köln-am-Rhein.

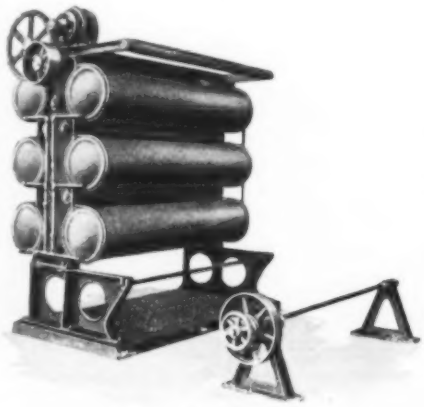
UNIQUE ACCELERATOR AND ANTI-OXIDANT

Anti-oxidant or aging quality is not generally associated with an effective accelerator. However, "R. & H. 50" works perfectly as a moderate speed accelerator in all stocks, and has the advantage of exceptional aging properties. Confirmation of this fact is seen in the case of a stock testing 3,750 pounds per square inch on the day it was vulcanized. After aging 3½ days in a bomb under 300 pounds pressure of oxygen at 60 degrees C. this stock reached a maximum of 4,300 pounds and during this period the stress-strain curve remained horizontal as represented by the load at 600 per cent elongation.

New Machines and Appliances

Drier for Rubber Fabrics

A COMPACT, simple and effective can drier for preparing fabrics for frictioning, etc., is here represented. It is complete on one base with the exception of the windup which must be fastened to the floor separately. The drums are of smooth sheet steel 78 inches long by 16 inch diameter. They are built for 100 pounds pressure although the usual working pressure does not exceed 25 pounds. The machine may be arranged for either motor or belting drive. Any number of drums can be used separately or in combination.

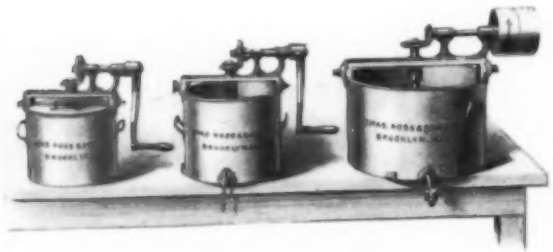


Banner Fabric Drier

In operation, the fabric is drawn from the roll through the machine by the small power drive rolls which also keep the fabric straight and prevent over-stretching. The manner of passing the fabric over and between the six stationary steam drums is such that both sides are brought alternately in contact with the heated surfaces. The bottom drum of the first tier is the first one passed over by the fabric, next it is drawn around the second drum of the same tier and thence around the top drum. From the latter it goes downward through the center of the machine to the bottom roll of the second tier thence upward through that tier as in the case of the first one. From the top of the second tier the fabric passes over the small spreader roll downward and is rewound dry at the windup. The pull on the fabric is independent for each drum and does not narrow or distort it.—The Banner Machine Co., Columbiana, Ohio.

Hand and Power Cement Mixers

Small jobs and experimental work where a special lot of cement is needed in the matter of color or composition can be conveniently



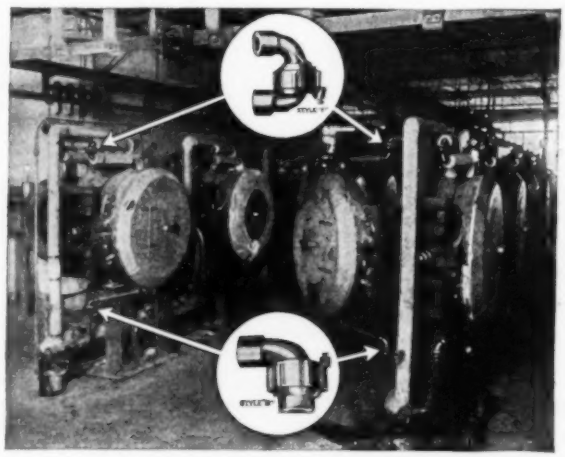
Ross Rubber Cement Mixers

prepared in any of the group of hand and power mixers here pictured. These run in capacity from 5 to 16 gallons, and are similar in general construction. The cross-bar supports the bearings and gears for operating stirrers of special design and is detachable and removable from the can. A three-quarter side outlet gate is attached and when desired a close fitting iron cover may be used to prevent loss of solvent by evaporation.—Charles Ross & Son Co., 148 Classon avenue, Brooklyn, New York.

Flexible Joints for Watch Case Vulcanizers

In the popular watch-case type of tire vulcanizer the front and back mold sections are hinged. One of the advantages of this style vulcanizer is the fact that the interval during opening and closing between heats is so brief that the interior and molds do not have an opportunity to cool appreciably. This condition requires the use of flexible steam joint piping.

The illustration pictures the Flexo-Joint and its application to the piping of a number of watch-case vulcanizers. These joints have no ground parts, packing or springs and are made for inter-



Watch-Case Vulcanizers With Flexo-Joints

changeability of parts. Flexibility in joints of steam piping is desirable in very many instances and especially so in connection with rubber working machines in mill, calender, press and vulcanizer rooms.—Flexo Supply Co., 104 South Main street, Saint Louis, Missouri.

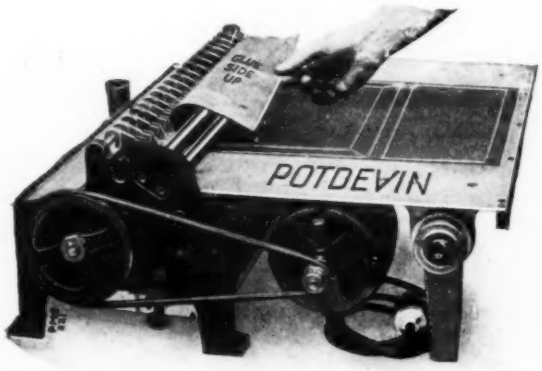
Machine for Gluing Labels

Packaging of rubber goods of all kinds, particularly footwear, presents a problem of brand and style designation which must be solved either by printing the description directly on the container or applying printed labels by pasting. Separate labels are preferred in most cases where the package must be made pleasing to the consumer, as they afford a wider opportunity for color printing. They have another advantage in that they can be applied immediately before the goods are packed and prevent the waste entailed by surplus containers due to seconds' which are usually packed bulk.

Potdevin label gluers can be employed effectively for this work as they perform the work five times as fast as brush daubing, and do a much more trim job. The only hand movement is to feed and receive the label delivered at a speed of 8 inches per second, glue side up. One rub over the entire box sticks it tight and flat to the box, due to the smooth paste coating. Glue on the printing

face of the label, blisters, wrinkles, and lumps which are usually the rule with even skilled labor, are eliminated by the use of these machines which can be operated by unskilled help.

Any fluid paste, gum, cold glue, or hot animal glue can be used with the Potdevin gluer which is equipped with a small motor.

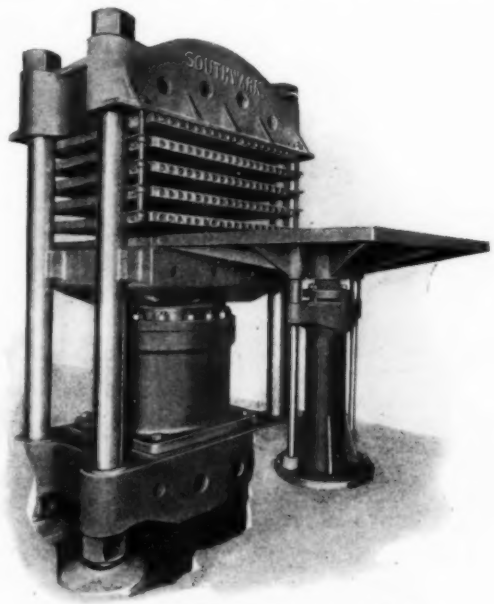


Potdevin Label Gluing Machine

The machines are portable and can be operated to advantage directly on the packing benches.—Potdevin Machine Co., 1221-38th street, Brooklyn, New York.

Six Hundred Ton Steam Platen Press

The accompanying illustration represents a 48 by 48 inch 5-platen steam press with a hydraulic elevator to facilitate loading and unloading of molds, and is of the latest design. It is very heavy in construction giving minimum deflection. The platens are of steel



Southwark Vulcanizing Press and Lift

with drilled steam passages. The surface pressure on the platens is 525 pounds per square inch. Pressmen will appreciate the self-contained hydraulic elevator without which the numerous openings could not be used to advantage. As designed this combination of press and lift is an efficient unit for curing such goods as tiling, mats, packing, etc.—Southwark Foundry & Machine Co., Philadelphia, Pennsylvania.

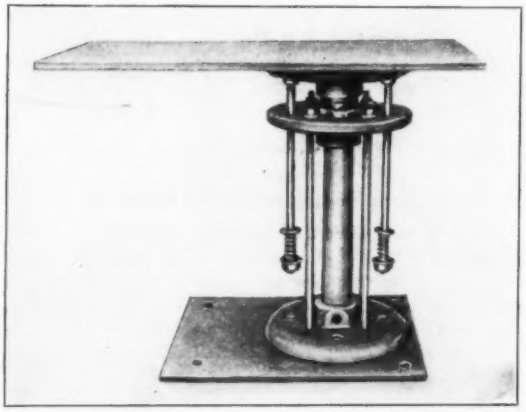
Aids for Operating Mechanical Goods Presses

Frequently in the operation of a press-room a large and continuous loss of hydraulic power takes place due to the fact that the full lift of the press ram is employed unnecessarily. In other words if a press of 3 openings of 4 inches each is used with molds 2 inches thick, the full 12-inch travel of the ram should be reduced to 9 inches which is sufficient to give ample clearance for the molds with a saving of 25 per cent on the hydraulic cost.

This result can be accomplished by putting a 3-inch thick filler block between the ram and the lower platen.

Hydraulic Lift Table

The use of the hydraulic lift table here pictured will enable a press operator to enter or remove a mold from any deck of the press onto the top of the lift table with perfect ease. This hydraulic lift is operated on a 100-pound pressure system and has a capacity of about 1,200 pounds which is ample for most work, and



Utility Lift Table for Mechanical Presses

can be made with greater capacity if necessary. The table of this lift can be made of any size to suit the work. The apparatus is neat and durable and greatly to be preferred over the usual home-made facilities frequently used.—Utility Manufacturing Co., Cudahy, Wisconsin.

Solid Tire Regroover

Preserving the anti-skid groovings on solid tire treads is a matter of much practical importance. Hitherto a handy and effective means of doing this has been lacking but there has now been perfected a most convenient electric power tool specially suited to this work.

The regroover comprises a holder containing the knife and is provided with a handle for guiding the cut across the tire tread. Connected to the regroover is a heavy duty high speed electric drill which drives the regroover knife through the rubber at a rapid rate. The knife is of V shape to give the preferred form of groove and is so regulated and guided that it always cuts to the same depth. Two knives are provided, one for a half-inch, and the other for three-quarter-inch depth of groove. The tool is so designed that the knife receives 3,000 impulses

a minute transmitted from the drill through hardened steel spiral gears packed in grease. Provision is made for lubricating the reciprocating parts.

The picture shows the method of using the tool and the deep clean cut groove it produces. Curves, circles and sharp right

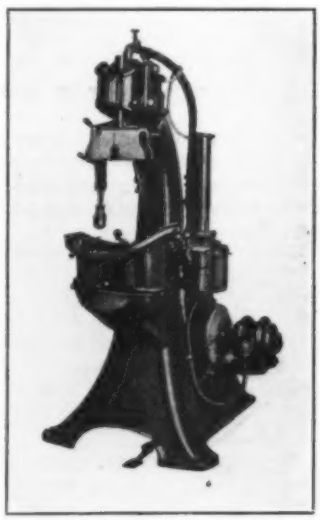
Black & Decker Solid Tire Regroover

angle turns can be cut and the knife can be made to enter or leave the tread of the tire at any point at will.—The Black & Decker Manufacturing Co., Towson, Maryland.

Rubber Footwear Soling Machine

The machine here illustrated has been developed to provide a more dependable and efficient method and means for applying outsoles of all types to rubber footwear. Its use permits greater uniformity and a higher standard of product by eliminating the uncertainties of hand rolling.

The shoe maker simply adjusts the outsole in position, places the shoe with the sole resting on the rubber pressure bag of the machine. Opening the pressure valve admits water pressure to the interior of the bag and inflates it upward. The shoe is held firmly against this pressure by supports bearing upon the last from above the shoe. The bag inflates against the under side of the sole and around its edges thus expelling all air from between the shoe and the sole and forcing the beveled edge of the latter into intimate contact with the foxing or upper.



U. S. M. C. Outsoling Machine

Hydraulic pressure of moderate intensity is used and the machine has a normal daily capacity of between 2,000 and 3,000 pairs. Practically no seconds are made when soles are applied by this machine which, with its low cost of maintenance and high capacity, make it a most profitable adjunct in the process of rubber shoe manufacture.—United Shoe Machinery Corporation, Boston, Massachusetts.

Full Circle Retread Mold

An interesting development in tire repair equipment is the full circle retread mold here illustrated. It is a practical solution of the retreading problem for tire users, dealers and manufacturers. The bottom half of the mold is secured to the angle iron stand and upper and lower halves are hinged together with the upper half counterweighted. Retreading in this mold gives a job equal in appearance to the original because there are no joints in the work and the cure is uniform around the circle.

Williams' Tire Retreader

The machine comes in two sizes, one for passenger car tires and the other for truck tire sizes with size shells. The latter are furnished for various tire tread patterns or with the makers' standard tread design. —The Williams Foundry & Machine Co., Akron, Ohio.

Process Patents

The United States

1,580,267 Making tires. Edward Nelson, Belleville, New Jersey, assignor to O. & W. Co., New York, N. Y.

1,580,428 Producing embossed sheet rubber. Frank Fenton, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,580,432 Sinuous hard rubber articles. Richard T. Griffiths, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,581,777 Rubber window glass channel. Rees Beynon, assignor to Dryden Rubber Co., both of Chicago, Illinois.

1,582,255 Vulcanizing auto tires. Walter L. Fairchild, New York, N. Y.

1,583,204 Imparting finish to shoe heels. Clifford D. Upton, Piqua, Ohio.

1,583,520 Vulcanizing inner tubes. Joseph Clarence Bolt, Boundbrook, New Jersey.

1,583,545 Patterned india rubber. Herbert Frood and Walter Richard Sydee, Chapel-en-le-Frith, England.

1,583,571 Closing openings in rubber products. Richard S. Burdette, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

The Dominion of Canada

260,446 Rubber brush. Robert Morse Withycombe, Sydney, New South Wales, Australia.

The United Kingdom

247,438 Treating bristles of paint brushes. W. H. Chadwick, and A. E. Macy, 12, Henry street, Holborn, London.

247,514* Molding rubber articles. A. T. Gustafson, 40 Norra Hamngatan, Gothenburg, Sweden.

248,499 Pneumatic cushions. E. C. R. Marks, 57, Lincoln's Inn Fields, London (Airubber Corporation, 510 North Dearborn street, Chicago, Illinois, U. S. A.).

*Not yet accepted.

New Zealand

55,036 Rubber goods manufacture. The Anode Rubber Co., Ltd., 15, Throgmorton avenue, London, England, assignee of Dr. Paul Klein and Dr. Andrew Szegvari, both of v. Vilmos Csaszar-ut 78, Budapest, Hungary.

Germany

428,069 (March 3, 1925). Method of beveling the edges of inner tubes. The Dunlop Rubber Co., Ltd., London, England. Represented by Dr. R. Wirth, C. Wiehe, Dr. H. Weil, M. M. Wirth, all of Frankfurt-am-Main, and T. R. Koehnhorn and E. Noll, of Berlin, S. W. 11.

Machinery Patents

The United States

1,579,300. APPARATUS FOR MAKING TUBES. This machine is designed to stretch the unvulcanized sheet of rubber before its application to the forming pole and thus be under tension when it is wrapped for consolidation of the plies. The tube sheet is placed under tension by a clamping bar and the tube mandrel is stretched by movement of the former. The tension of the rubber against the mandrel results in a smooth finish on the vulcanized tube.—John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,579,717. TIRE FLAP VULCANIZER. This vulcanizer is designed to vulcanize tire flaps in endless trough-shaped form. The vulcanizer is supported on a vertical stand. Its fixed central portion is steam jacked and so are the hinged segmental jacket sections. These contain circular air bags for compressing the flap into the groove of the central section. When the jacket sections are clamped in position the air bags are inflated to compress the flap during the cure.—Otto J. Kuhlke, assignor to The Kuhlke Machine Co., both of Akron, Ohio.

1,579,922. MACHINE FOR MAKING CLINCHER TIRES. The object is to build tires with the fabric under proper tension for vulcanizing without their removal from the solid building cores. The method comprises building the tire with its sidewalls narrower than they are to be in the finished tire and stretching the walls about the core. This is accomplished by moving the beads of the tire radially inward by force applied at numerous uniformly distributed positions on the beads and vulcanizing the tire so stretched.—John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,580,480. TIRE SHAPING MACHINE. Provision is made for shaping tire bands with a core. The mechanism is operated by power to expand or contract at will. An adjustable stop is set according to the diameter to which the crown of the band is to be expanded by the power applied.—Claude M. Gautier, London, England.

1,580,745. APPARATUS FOR CHARGING AND REMOVING TIRES FROM MOLDS. This apparatus reduces the manual labor of handling tires in and out of molds at the vulcanizers and to transport them mechanically to a convenient spot for stripping the cured tire and refilling the molds with uncured tires. A special feature is means for separating and reuniting the mold sections during transit and the operations of shipping and filling the tires.—Jesse E. McBride, assignor to Parmer-Bee Co., both of Detroit, Michigan.

1,580,916. BIAS CUTTING MACHINE. Designed for cutting fabric at an angle of 45 degrees, or any other angle. It comprises a roller on the surface of which are secured a number of helical blades arranged at the desired angle. The fabric is led over this roller and pressed against it by one or more pressure devices so that it is severed in strips at the required angle.—Edward D. Putt, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,581,090. VULCANIZING PRESS FOR INNER TUBES. The press is operated by fluid pressure and comprises two platens, one stationary and one moveable with ram for operating the latter. A mold section is bolted to each platen and guide posts project through the platen to insure registry of the mold sections. On top of the press a series of lever operated bolts or keys are arranged to enter slots in the guide posts serving to lock the platens and mold sections together during vulcanization.—Richard T. Schmidt, assignor to The Akron Equipment Co., both of Akron, Ohio.

1,582,143. BOOT TREE. A hollow boot tree with a detachable locked toe section, and means of admitting air under pressure between the boot and last for blowing the boot clear of the last.—J. E. Perrault and Louis J. Schroeder, assignors to Hood Rubber Co., all of Watertown, Massachusetts.

1,582,604. DRYING APPARATUS FOR LATEX. Provides for film drying rubber latex independently of the previously dried material, the product containing a minimum amount of moisture, and forming a crude rubber easy to mill. The latex is supplied from a tank to a cylindrical auxiliary tank containing a drum dipping in the latex and upon the surface of which it is dried as the drum is rotated while heated on its interior by hot air conducted through it from a furnace. The vapor escapes at the opposite end. The dry film of rubber is removed automatically from the drum by a scraper against which it revolves.—Ernest Hopkinson and Reed P. Rose, assignors to General Rubber Co., all of New York.

1,582,900. VULCANIZER. This is a watch case tire vulcanizer comprising a number of alined annular mold sections and means to close the central openings of the two sections at opposite ends of the group. The molds are steam jacketed and the end sections are arranged with pockets or recesses lined with insulating material to prevent loss of heat.—Leger S. Castonguay, assignor to The Williams Foundry & Machine Co., both of Akron, Ohio.

1,583,226. VULCANIZER. This is a double watch case vulcanizer in which two pairs of hinged co-operating mold sections are secured together when closed by means of a heavy central bolt passing through the annular space of the molds and clamping over that space on either side an iron spider or cover holding the mold sections in contact.—John Flynn, assignor to The Williams Foundry Co., both of Akron, Ohio.

1,580,625 Tire making apparatus. John F. Palmer, St. Joseph, Michigan.

1,580,917 Machine for cutting material on the bias. Edward D. Putt, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,580,918 Rotary cutter and method of making cutter drums. Edward D. Putt, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,581,360 Repair stand. William Procknow, Milwaukee, Wisconsin, assignor to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,581,361 Device for assembling tread units. Harry Smith, Cudahy, Wisconsin, assignor by mesne assignments to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,581,675 Washer setting. James W. Brundage, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,583,033 Package strapping bench. Sidney W. Treat and Alf G. Rosnes, assignors to Signode System, Inc., all of Chicago, Illinois.

The Dominion of Canada

259,639 Tire machine. The Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario, assignee of Colin Macbeth and Arthur Kay, both of Birmingham, County of Warwick, England.

259,822 Vulcanizer. The Kuhlke Machine Co., assignee of Otto J. Kuhlke, both of Akron, Ohio, U. S. A.

260,263 Tire vulcanizer. The Kuhlke Machine Co., assignee of Otto J. Kuhlke, both of Akron, Ohio, U. S. A.

The United Kingdom

247,929* Apparatus for making or pressing compound fabrics. E. H. Enna, 88 Aarhusgade, Copenhagen.

248,107 Tire press. Dunlop Rubber Co., Ltd., 1 Albany street, Regents Park, London, and G. A. Mortier, Fort Dunlop, Erdington, Birmingham.

248,542 Surface condensers. E. Rohlin, 15 Lutherstrasse, Berlin, Germany.

*Not yet accepted.

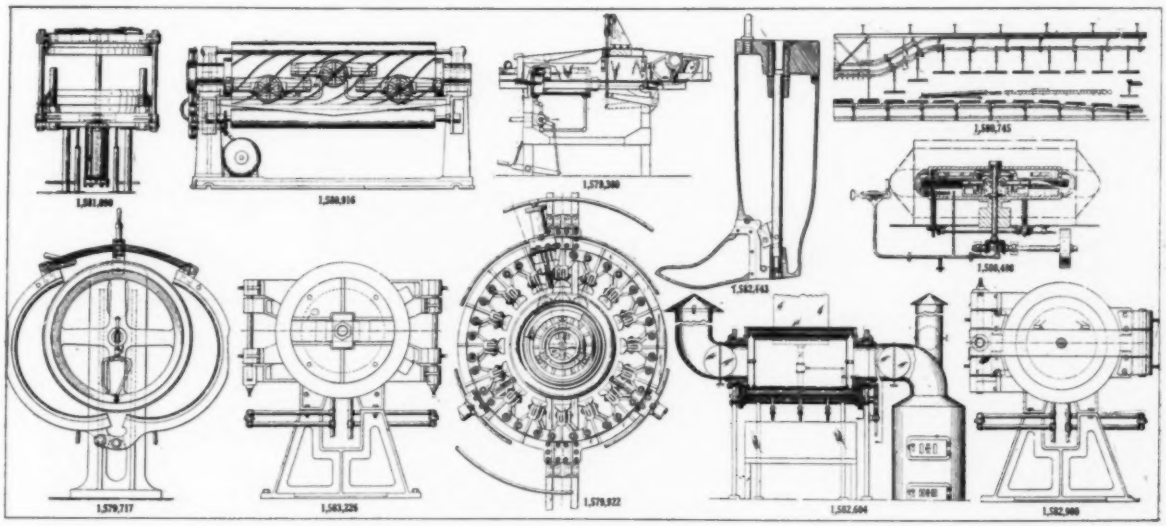
New Zealand

55,840 Apparatus for measuring thickness of rubber. Dunlop Rubber Co. of Australasia, Ltd., 108 Flinders street, Melbourne, Victoria, assignee of The Dunlop Rubber Co., Ltd., Dunlop House, 1 Albany street, Regent's Park, London, England, the assignee of Colin Macbeth and Wallace John Dexter, both of Fort Dunlop, Erdington, Birmingham, England.

Germany

943,013 (February 15, 1924). Machine for kneading rubber and the like. Dunlop Rubber Co., Ltd., Birmingham, England. Represented by Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. M. Wirth, Frankfurt-am-Main, and T. R. Koehnhorn and E. Noll, Berlin S. W. 11.

943,362 (September 29, 1925). Heating oven for rubber molds. Continental-Caoutchouc und Gutta-Percha-Compagnie, Hannover.



Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
798	Machine for making hood cloth.
799	Jar ring cutting machines.
800	Source of supply of standard rubber band tubing.
801	Clock for timing vulcanizer heats.
802	Golf ball mold manufacturers.
803	Jobbers to handle French rubber toys and balls.
804	Reliner mold and vulcanizer.
805	Steam tube splicing vulcanizer.
806	American representatives of Lehman & Voss, Hamburg, Germany.
807	Manufacturers of nipples for medicine droppers.
808	Tapping knives and machinery used on rubber plantations.
809	Manufacturers of advertising rubber coin mats.
810	Source of supply for swimming gloves.
811	Firms handling cord fabric.
812	Machines for making pulled fabric for reliners and blowout patches.
813	Manufacturers of endless reliners.

Foreign Trade Opportunities

Address and information concerning the inquiries listed below will be supplied to our readers through The India Rubber World, 25 West 45th street, New York, N. Y.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
19,547	Latvia. Toy balloons	Purchase
20,034	China. Hot water bags	Agency
20,049	Brazil. Automobile tires, medium and low priced	Purchase and agency
20,077	Uruguay. Machinery for making rubber soled, canvas top shoes	Purchase
20,086	Sweden. Bathing caps, gloves, aprons, water bottles, ice bags, and surgical rubber goods	Purchase and agency
20,150	Poland. Automobile tires	Purchase and agency
20,157	Australia. Rubber specialties	Agency
20,161	Germany. Automobile tires	Purchase and agency
20,162	England. Rubber goods, hygienic, surgical, and household	Sole agency
20,163	Germany. Rubber-soled shoes	Purchase
20,164	Germany. Printers' offset blankets and rubber aprons.	Purchase
20,165	Switzerland. Rubber boots and shoes	Purchase
20,204	Germany. Rubber balls and toys	Purchase
20,232	Switzerland. Rubber waist belts, ebonite accessories, tires and tubes, and rubber accessories for bicycles	Agency
20,285	Germany. Automobile tires	Agency
20,318	Morocco. Rubber erasers	Purchase and agency
20,330	Canada. Rubber novelties and druggists' sundries	Purchase and agency
20,332	Salvador. Rubber molds, for making small statues and busts	Purchase

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

NUMBER	SPECIAL CIRCULAR
1141	"Comparative Exports of Rubber Boots and Shoes from United States, Canada and United Kingdom during 1925."
1143	"Tire Exporters' Weekly News Letter."
*1145	"March Imports of Rubber Tires Into the United States."
*1147	"Crude Rubber Reexports from the United States, Month of March, 1926."
1148	"Tire Exporters' Weekly News Letter."
*1149	"Dealers' Stocks of Automobile Tires on April 1, 1926."
1150	"Mechanical Rubber Goods Exporters' Monthly News Letter."
1151	"Tire Exporters' Weekly News Letter."
*1152	"Canadian Tire Exports During March, 1926."
*1154	"Canadian Tire Exports Heavy During First Quarter of 1926."
*1155	"British Exports of Automobile Casings During First Quarter of 1926."
1157	"Tire Exporters' Weekly News Letter."
*1159	"French Tire Exports During First Quarter of 1926."
1160	"Export Trade Notes on Rubber Specialties."
*1161	"Estimates of Production and Forward Sales of Rubber in Netherlands India."
*1163	"Preliminary Statistics of April Crude Rubber Imports."
1165	"Tire Exporters' Weekly News Letter."
*1168	"April Imports of Rubber Tires Into the United States."

A. S. T. M. Annual Meeting

The twenty-ninth annual meeting of the American Society for Testing Materials will be held June 21 to 25 at Atlantic City, New Jersey. The meeting will comprise 13 sessions covering every phase of the association's activities. Papers and reports relating to textiles, rubber products, insulating materials, etc., will be presented at the evening session on June 24.

Committee Reports

The report of Committee D-13: On Textile Materials. W. F. Edwards, chairman. Presents new specifications for tolerances and test methods for electrical cotton tapes, and for rayon. Recommends for publication as information revisions of the methods of testing cotton fabrics. Submits revisions of the definitions of terms relating to textile materials.

The report of Committee D-11: On Rubber Products. F. M. Farmer, chairman. Submits a brief report of work that has been done in the development of an abrasion life test and a life test for rubber belting.

Specifications for Fire Hose to Be Revised

The American Engineering Standards Committee has designated the Fire Protection Group and the A. S. T. M. as joint sponsors to organize a Sectional Committee on Specifications for Rubber-Lined Fire Hose, through which it is expected to unify existing specifications for this product. The sponsors have appointed a committee consisting of Messrs. A. R. Small, G. W. Angell, F. M. Farmer and C. L. Warwick to handle the details of organization and ten interested bodies will be invited to appoint representatives on the Sectional Committee.

The work of the Sectional Committee will be coordinated closely with that of our Committee D-11 on Rubber Products, which is responsible to the Society for the two A. S. T. M. fire hose specifications.

NEW PRESIDENT OF GOODYEAR DISCUSSES WAGE PROBLEMS

Addressing a meeting held May 11 in Washington, D. C., by the Manufacturers' Division of the United States Chamber of Commerce, Paul W. Litchfield, president of the Goodyear Tire & Rubber Co., Akron, Ohio, claimed that in recent years the purchasing power of the wage has come up to a greater extent than the cost of living, or the exchange value of the wage, so that today the standard of living, or the purchasing power of the wage, is approximately thirty per cent above the pre-war standard.

While management has sought to maintain wages, and not to decrease them, it also realizes that wages can be maintained only through increasing the production output per man.

"It used to be the thought," said Mr. Litchfield, "that the first thing to cut when profits began to shrink was wages. It is now recognized that this condition should be met by increased efficiency, elimination of waste, the cutting down of overheads in production and distribution, and an attempt to maintain wages by increased and more efficient production, because a general cutting down of wages curtails the demand for the finished products of industry, the demand for which is the very life blood of prosperity."

AJAX TIRES CARRY SPECIAL LABEL

A new method of marking automobile tires is being utilized by the Ajax Rubber Co., Trenton, New Jersey. Especially adapted to original equipment is this plan of molding into the sidewall of the tire the words "Made Expressly For—" while immediately below is the automobile maker's trademark. It is believed that the new method has many advantages, and that it will be instrumental in leading the automobile owner to use similar tires when the original set needs replacement. Each of these special labels also bears the words "Patent Pending."

Editor's Book Table

Book Reviews

"THE PLASTICITY OF UNVULCANIZED RUBBER." By R. W. Griffiths, Cambridge, W. Heffer & Sons, Ltd., 1926. Paper, 35 pages, 5¼ by 8¼ inches. Illustrated.

THIS important contribution to the technology of rubber is a discussion of the control of raw rubber variation under practical working conditions. It was read as a lecture before the Institution of the Rubber Industry and is now reprinted from the "Transactions" of that organization.

"YEAR-BOOK OF THE DEPARTMENT OF AGRICULTURE, CEYLON, 1926." Published under the authority of the Director of Agriculture, Peradeniya, Ceylon. Paper, illustrated, 62 pages, 7½ by 10 inches.

Included in this issue are articles of interest to the rubber industry by F. A. Stockdale, entitled "Soil Erosion"; another by T. H. Holland, "Soil Erosion Experiments on the Experiment Station, Peradeniya"; and a third by C. H. Cadd, who took as his subject "Hevea Mildew."

"UNITED STATES GOVERNMENT MASTER SPECIFICATIONS." Published by the Department of Commerce, Bureau of Standards, Washington, D. C. Paper, 7 by 10 inches.

The following specifications, officially promulgated on given dates by the Federal Specifications Board for the use of the departments and independent establishments of the government, have been revised March 1, 1926:

No. 39b. Rubber Tubing.
No. 41b. Pneumatic Hose.
No. 382. Rubber Matting.
No. 383. Rubber Stoppers.

New Trade Publications

"TYCOS INSTRUMENTS FOR THE RUBBER INDUSTRY." CATALOG Part Two. Published by Taylor Instrument Companies, Rochester, N. Y. Data and illustrations regarding industrial thermometers, barometers, temperature and pressure regulators, etc.

"GOODRICH HI-PRESS RUBBER FOOTWEAR." CATALOG, ILLUSTRATED in color, and published by the Canadian Goodrich Co., Ltd., Kitchener, Ontario, Canada.

THE TIRE AND RIM ASSOCIATION OF AMERICA, INC., 1401-2 Guarantee Title Building, Cleveland, Ohio, has published its first year book. Included in this issue are lists of officers and members of the organization, as well as its constitution and by-laws. There are also detailed specifications as to various rim sizes.

"DE LAVAL PUMPS IN PROFITABLE IRRIGATION PLANTS." A well-illustrated booklet representing certain Western installations by the De Laval Steam Turbine Co., Trenton, New Jersey.

"FACTS AND FIGURES OF THE AUTOMOBILE INDUSTRY, 1926 Edition." This seventh annual edition of a well-known publication, prepared by the National Automobile Chamber of Commerce, Marlin-Rockwell Building, 366 Madison avenue, New York, N. Y., contains as usual much information of interest to the automotive and rubber tire industries.

THE FOLLOWING HOUSE ORGANS HAVE BEEN RECEIVED: DAYTON Tires, published by The Dayton Rubber Manufacturing Co., Dayton, Ohio; The Wingfoot Clan, published by the Goodyear Tire & Rubber Co., Akron, Ohio; and the C. T. C. Mixing Mill, published by the Columbia Tire Corporation, Portland, Oregon.

"TIRE RATE BOOK, APRIL, 1926," IS PUBLISHED QUARTERLY BY Edward Lyman Bill, Inc., 383 Madison avenue, New York, N. Y., the new issue containing as usual much information of interest to the tire industry.

"THE WEATHER VEIN," VOLUME 6, NO. 1, 1926. PUBLISHED by the Carrier Engineering Corporation, 750 Frelinghuysen avenue, Newark, New Jersey. This issue of the Carrier house organ is devoted to a review of the company's history, while the illustrations include photographs of the chief executives of the organization.

JOHN ROBERTSON CO., INC., 133 WATER STREET, BROOKLYN, NEW York, manufacturer of hydraulic presses and pumps, is issuing an illustrated bulletin entitled "Lead Encasing Presses and Equipment."

"BRISTOL'S TACHOMETERS FOR RECORDING AND INDICATING" IS the title of a new illustrated catalog being sent out by The Bristol Co., Waterbury, Connecticut, manufacturer of recording instruments.

"BROWN PYROMETERS" IS THE TITLE OF AN INTERESTING AND valuable illustrated book of data issued by The Brown Instrument Co., Philadelphia, Pennsylvania. While it is issued as "Catalog Fifteen" it is in fact a text book on the latest in pyrometry, of permanent value to the process engineer and superintendent.

"MODERN MACHINERY FOR RUBBER PLANTATIONS," DAVID BRIDGE & Co., Ltd., Manchester, England. An unusually attractive illustrated booklet, the many photographs representing scenes on rubber plantations of the Far East and installations of Bridge plantation machinery. Other photographs show the development of the company's Manchester plant from small beginnings in 1896 up to the present time, when the works cover six acres. The business is being maintained by the five sons of David Bridge, late founder of the organization.

Abstracts of Recent Articles

THE CHEMISTRY OF RUBBER. A review.—W. J. Kelly and H. A. Bruson, *Journal of Chemical Education*, 3, 253-266, 1926.

THE WORK OF THE BUREAU OF STANDARDS ON RUBBER.—C. E. Waters, *Journal of Chemical Education*, 3, 291-295, 1926.

RUBBER FERTILIZER EXPERIMENTS AT THE EXPERIMENT STATION AT PERADENIYA.—T. H. Holland, *Tropical Agriculturist*, Ceylon, 65, 10-16, 1926.

EFFECT OF HEAT GENERATED DURING STRESSING UPON TENSILE PROPERTIES OF RUBBER. When stressed, rubber generates heat at such a rate that the temperature of the rubber rises considerably above room temperature and this temperature rise causes changes in its tensile properties. As the tensile properties of rubber are used as criteria in the studies of rubber technology, this change in tensile properties due to the heat generated in the stressed rubber should be considered when precision is desired.—C. E. Boone and J. R. Newman, *Industrial & Engineering Chemistry*, May, 1926, 539-540.

INSULATED CABLE STANDARD REVISED. The S. A. E. Standard for Insulated Cable, High Tension or Secondary Ignition Cables, and Armored Lighting Cables.—*Journal Society Automotive Engineers*, May, 1926, 419-422.

A DEVIATION OF THE LAW OF POISEUILLE.—Bruno Marzetti. Translation by C. C. Davis from *Rendiconti della Reale Accademia Nationale dei Lincei*, Vol. II, series 6a, Part 2, No. 5-6, September, 1925.

VULCANIZATION AND ACCELERATORS. Part II. Serial.—André Dubosc, *Rubber Age*, New York, May 10, 1926, 104-105.

TECHNICAL PROBLEMS CONNECTED WITH RUBBER COVERING OF IRON ROLLS. Serial. Principles of roll cover compounding and testing data.—H. P. Gurney and F. F. Cameron, *India Rubber Journal*, April 10, 1926, 601-613.

HIGH PRESSURE PACKING SHEETS. Serial. Manufacturing practice.—Anonymous, *India Rubber Journal*, April 10 and 17, 1926, 682-683; 643-644.

PNEUMATICS FOR HEAVIER LOADS.—Colin Macbeth, *India Rubber Journal*, April 17, 1926, 645-647. Illustrated.

SEAMLESS RUBBER GOODS. Serial. German manufacturing practice.—Anonymous, *India Rubber Journal*, May 1, 1926, 719-725. Illustrated.

VULCANIZATION OF DIFFUSION RUBBER. Relates to the author's theory of rubber structure and elasticity.—H. Feuchter, *Gummi-Zeitung*, April 30, 1926, 1691-1692.

NOTES ON THE RELATIONSHIPS BETWEEN YIELD AND SOME OF THE VEGETATIVE CHARACTERS IN HEVEA.—R. A. Taylor, *Tropical Agriculture*, March 1926, 157-159. Tables.

INVESTIGATIONS IN CONNECTION WITH THE FLOW OF LATEX. IV. Influence of Ringing on the Latex-yield.—W. H. Arisz. *Archief voor de Rubbercultuur*, April, 1926, 127-140. Graphs, tables. English version 141-148.

SOME EXPERIMENTS ON THE PRESERVATION OF LATEX WITH AMMONIA COMBINED WITH OTHER MEANS.—Dr. O. de Vries, *Archief voor de Rubbercultuur*, April, 1926, 149-154. Tables. English summary.

THE MANUFACTURE OF INNER TUBES FOR BICYCLES. *Gummi-Zeitung*, April 9, 1926, 1529-1530. Diagram.

THE TEMPERATURE INSTALLATION OF THE KÖLNISCHE GUMMIFÄDENFABRIK (RUBBER THREAD FACTORY) VORMALS. FERD. KOHLSTADT & CO., KÖLN-DEUTZ.—M. Hirsch, *Gummi-Zeitung*, April 30, 1926, 1694-1695. Illustrations.

APPLICATION OF RESEARCH TO THE RUBBER INDUSTRY.—R. P. Dinsmore, *Chemical and Metallurgical Engineering*, May, 1926, 296-297.

SIMPLIFICATION OF BALLOON TIRE SIZES URGENT

It is too bad that the need for standardization of balloon tire sizes was not seen when the tires were first marketed, as the weeding out process which is now necessary cannot be accomplished without an economic loss to tire manufacturer, tire dealer, and car manufacturer. The changing period through which we are now passing from high pressure to balloon casings has multiplied the stock and inventory problem for all concerned and there is no doubt that the balloon size muddle coupled with this has been a contributory cause to slowness in the tire industry this spring.

The Division of Simplified Practice of the United States Department of Commerce has tackled the problem, but responses from a questionnaire sent to all manufacturers concerned indicate that they regard the diversity as too great to accomplish anything.

The multiplicity of tire sizes does not end with the sizes of tires alone. It enters into the stocking of wheels and rims, tire carriers, chains, tire covers, repair molds and many other items. In each of these every additional size of tire provides an added item of expense, both to the dealer and the user. All of this adds to the cost of tires to the ultimate consumer.

Other detrimental effects of the present condition are the fact that the dealer runs the risk of deterioration of his stock if he carries all sizes, and the loss of trade if he stores only the more popular numbers of high pressures and balloons.

Of the 23 listed sizes on balloon tires 51 makes of cars out of 94 use only 4 sizes.

UNITED STATES EXPORTS OF PNEUMATIC CASINGS DURING THE calendar year 1925 have totaled 1,628,182, value $21,055,372, as against the corresponding figures for 1922 of 1,326,220 casings, value $16,604,459. Values in 1925 for inner tube and solid tire exports were respectively $2,974,873 and $3,179,597, as against the 1922 figures of $1,775,229 and $1,518,932. It will be noted that in 1925 the figures for solid tires have more than doubled.

Interesting Letters from Our Readers

Increase in 1926 Tire Replacements Will Be Less Than Anticipated

TO THE EDITOR:

DEAR SIR: It is not the lateness of the season which is responsible for the unusual stock of tires on hand, it is failure to take into account an important change in the industry. Approximately two million more cars were in commission this spring than last year and a substantial portion of these were commercial vehicles, taxicabs, pneumatic equipped buses, delivery wagons, etc. It is safe to say a greater aggregate number of tire miles have been travelled since January 1 than in the same period of any previous year. The late season has not affected adversely original equipment. More new cars have been equipped and shipped since January 1 than in the corresponding period of any previous year. True the tire dealer anticipating possible reductions in price has not stocked up, but sufficient tires have been carried in stock to supply the demand, and car owners are buying at least enough to keep them going.

Evidently the industry has failed to take into account and make allowance for a radical change which has taken place and will probably reduce normal tire renewals this year, or offset the anticipated increase in 1926. The check in renewal requirement increase in 1926 is traceable to the change from fabric to cord tires as original equipment on Ford and other cars in the low price class. Fabric tire equipment usually comes in for renewals within a year, while cord tires, which should give more than twice the mileage, will carry into the second year. Although this means a reduction of several million tires below anticipated requirements in 1926, actual tire requirements this year should approximate those of 1925. Tire renewals should resume the normal increase after skipping 1926, as a large part of the low price cars originally fitted with fabric tires have been renewed with cord tires during the last several years.

It is strange that the effect of this change was so thoroughly overlooked when it did come, as every tire man must have realized for several years that it was only a matter of time when some car of the Ford price class would put on cord equipment and all would follow. This is a change which was inevitable and the industry should be on a better basis by having it behind them. The break in the increase coming at this time may prove a blessing in disguise, provided the tire companies do not slash prices and attempt to dump the excess stock as they did in 1920.

If the tire manufacturers had analyzed the situation correctly in 1919, they would have discovered that probably six or seven million of the tires shipped during that year were required to replenish the dealers depleted stock, following the restriction of production during the war, and that only about twenty-five million tires were currently required.

Had the tire manufacturer kept in mind the facts that tire requirements must be supplied; that price cutting would not create a new consumer; and that production should be reduced sufficiently to allow the accumulated surplus to be distributed through the regular connections; it would have saved the industry a vast amount of money and proven profitable to him in the end.

NEW YORK, N. Y. H. O. SMITH.
May 20, 1926.

MOTOR VEHICLE REGISTRATION IN UNITED STATES—1925

During the past year the registration in the United States of motor cars included a grand total of 19,954,347 vehicles, the figure for passenger cars, including taxis and buses, being 17,512,638. In this registration by states New York again occupied first place, with 1,625,583 vehicles; California was second, with 1,440,541; Ohio totaled 1,346,400; Pennsylvania, 1,330,433; and Illinois, 1,263,177.

New Goods and Specialties

Bath Tub Toys

To amuse the kiddies during the trying bath time period, I. B. Kleinert Rubber Co., 485 Fifth avenue, New York, N. Y., has devised new games and toys which are bound to distract and occupy the attention of the most fractious youngster.

Kiddie Quoits is a water game which is safe and instructive as well as entertaining. The pegs and rings are made of soft rubber in different colors, the colors fast which render them harmless should a child place them in the mouth. The object of the game is to throw the rings over the pegs of the same color while the pegs are floating on the water. The game may be played in a bath tub, basin or outdoor pool, and teaches children to distinguish as well as match colors.

Kiddie Quoits and Boat for Bath Tub

The boat here pictured would delight any boy and may be made to take difficult and dangerous voyages while scrubby ears are being cleaned.

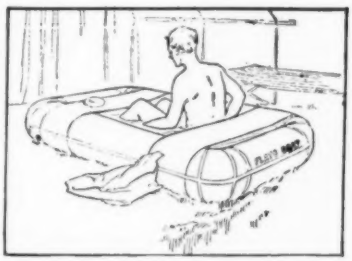
Table Pads

The Nevawet table pads are guaranteed to be waterproof because they are made by a special rubberized process, connected at seams with the same waterproof material. They are also soundproof as they are constructed of a layer of duck, a layer of wadding and cross stitched, which cushions the blow of any object striking the surface of the pad. The pads, being treated with a special veneer of heatproof rubber, vulcanized on the cloth at 232 degrees F., are heatproof and cannot be harmed by boiling water. Another advantage which these table pads have is their flexibility, requiring very little space when not in service, it being possible to fold them like an ordinary tablecloth. The pads are washable and easily cleaned, and may be procured in any size, shape or style desired.—Nevawet Products Corporation, 28-30 West 25th street, New York, N. Y.

Nevawet Table Pad

Flato Boat

This rubber boat is one of the lightest boats made, and may be rolled and carried under the arm from one lake to another, a great asset to the duck hunter, trapper, camper or angler. Upside down it becomes a comfortable mattress though the ground be wet or damp, as the waterproof, airtight chambers afford complete insulation; filled with water it becomes a bath tub. The boat is made of triple thick balloon fabric, rubberized and waterproofed and, being indestructible, will last for years. Each boat is furnished with a special pump with which it may be inflated in from four to six minutes.



Flato Converted Into Bath Tub

While the Flato was originally designed for the sportsman, there is great demand for it as a playboat for children because of its non-capsizable and non-sinkable features. The pontoons are made of two semi-tubular sections, so that if one chamber is punctured, the other chamber will float the load to shore. Repairs are made with a cold patch.—The New England Airship Co., Inc., 511 Chapel street, New Haven, Connecticut.

Chicago Children Enjoy Novel Contest

That the toy balloon continues popular with children is evident from the accompanying photograph, which represents some of the thousand Chicago children who recently participated in an annual balloon race held by the South Park commissioners at Washington Park, Chicago, Illinois. Each of the youngsters set free a gas-filled balloon to which a note with the child's name had been attached, the balloon found farthest away winning the prize. The use of toy balloons for advertising and publicity purposes is still full of suggestion and present endless possibilities to the progressive manufacturer.—Oak Rubber Co., Ravenna, Ohio.

Underwood & Underwood

Contestants in a Toy Balloon Race

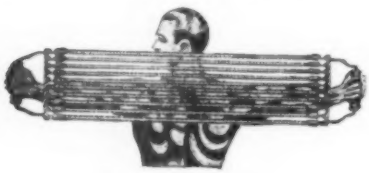
Rubber Composition Disks

There is a Jenkins disk of rubber compound for practically every condition of service found in the average building or factory such as, working steam pressures up to 150 pounds, for hot or cold water, air, gas and other fluids. They insure perfect contact, presenting as they do a slightly yielding surface to the valve seat and being flexible enough to adapt themselves to the seat. Under normal conditions the disks will give long service, and in case of a leak through the seat, due to wear or some injury to the disk, it is only necessary to remove the damaged disk and replace it with a new one, which can be readily done in a few minutes.—Jenkins Brothers, 80 White street, New York, N. Y.

Jenkins Disk

Rubber Elastic Exerciser

The Hendrickson muscle and health builders are a quick method of obtaining permanent musclar development, strength and agility. The powerful resistance of the elastic cord responds to the muscles and works in harmony with the entire muscular system, besides allowing a great variety of movements to be made.



Chest Expander

The chest expander illustrated develops the arms, shoulders, back and lungs, the novel construction of the exerciser testing the muscles to the utmost and strengthening and restoring latent vigor.

A combination set is offered called the Complete Home Gymnasium Outfit, which includes a spring exerciser, grip machines and chest expander. Extra elastic cables, springs and other parts for the various machines may be obtained.—Lind Hendrickson Co., Inc., 321 Broadway, New York, N. Y.

New Goodrich Gaiter

Spring has brought forth many new creations in the gaiter line, amongst them the new Lo-Zipper, another innovation of The B. F. Goodrich Co., Akron, Ohio. This gaiter has a cuffed jersey top with a cream colored stockinette lining and is equipped also with the hookless fastener, a feature of all Zipper boots.

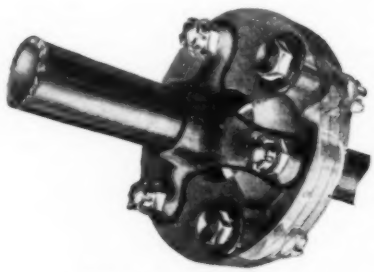
Lo-Zipper

Sponge Rubber Cushions

An interesting feature of the International Rugby game at Twickenham, England, was the great number of waterproof cushions, filled with sponge rubber, carried by the spectators. The idea for these cushions was the result of a competition inaugurated by The Rubber Growers' Association, 2 Idol Lane, Eastcheap, London, E.C. 3, England, for the best suggestion for new uses of rubber. The first prize of £1,000 was awarded for the idea of sponge rubber for cushions and upholstery, which idea was so eagerly adopted by the crowd at Twickenham.

Snead Type Fabric Cushion Joint

The Spicer Manufacturing Corporation, South Plainfield, New Jersey, announces that it is now manufacturing the universal joint formerly known as the Snead cushion joint, the name of the unit having been changed to Spicer fabric cushion joint (Snead type). The flexibility of this joint is obtained by the bending action of fabric disks, several of these being placed together with spacing washers between. A spider is attached to each side of the set of disks, so placed that the feet of the driving spider are located between the feet of the driven spider on the opposite side, each foot bolted fast to the disks. An outstanding feature of this joint is that no lubrication of any kind is used. It is light in weight, shows high efficiency in tests and acts as a cushion absorbing all shocks, giving great satisfaction when used where the driving angles are not extreme. It is also used as a cushion between the clutch and the gear-shift mechanism.



Fabric Cushion Joint

Nursery Designs for Tile Blocks

The United States Rubber Co., 1790 Broadway, New York, N. Y., has added to its line of tiles a block flooring especially designed for nurseries. The blocks are adorned with animals and birds such as appeal to the eye of a child. All sorts of decorative ideas may be evolved, the tiles coming in squares of varying sizes, the figures for the most part being black with an occasional touch of red or some other bright color. Among the animals and birds in the series are a cow, turkey, parrot, elephant, horse, mule, squirrel, rooster, and a camel. The whole floor can be constructed of the picture tiles, or the pictures used as sparingly as desired. The tiles make an ideal wall covering as well as flooring, and are suitable in the nurseries of hotels and institutions as well as private homes.

Parrot Design

Tire Cut Healer

The motorist should not be without a tire cut healer as a cut in the casing from a nail or a piece of glass if not given prompt attention may result in injury to the fabric, and the inner tube. By simply putting cut healer cement into the cut this is prevented and longer life assured to the tire. Various types of cut healers are manufactured by the St. Louis Rubber Cement Co., 3951 Laclede avenue, St. Louis, Missouri.

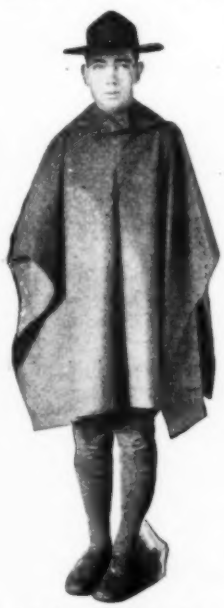
Rubber Life Boat Used by Commander Byrd

The life boat illustrated was used by Commander Byrd in connection with his polar expeditions, and has been enthusiastically received by the Navy Department. The boat and oars may be folded into a neat, compact package to be carried aboard the plane, inflated when required and launched into the water in very short time. Either oars or an outboard motor may be employed. The manufacturers of these Airafts are Airships Incorporated, Hammondsport, New York.

Life Boat Launched

Camper's Coverall

For real comfort and satisfaction when camping or touring, the camper's coverall or poncho illustrated is a real necessity. It has various uses, serving as an efficient raincoat, covering for camping outfit when rolled up, or sleeping cover. The poncho is furnished in two grades of materials and fitted with all necessary fasteners to give practical service. One type is made of special rubberized fabric, coated both sides, one side is tan color and the other black—absolutely waterproof; the other style is made of shelter tent khaki waterproof material.—The Cincinnati Specialty Co., 312 Main street, Cincinnati, Ohio.



Rubberized Poncho

Millinery Glue

One of the most satisfactory brands of millinery glue is the Dutch Brand Snow White which is manufactured by Van Cleef Brothers, Woodlawn avenue, Chicago, Illinois. This rubber glue has been enthusiastically adopted by the millinery trade as it will not spoil the most delicate colors.

Humane Live Bait Holder

By the use of these rubber bands, bait may be kept alive which, as every fisherman knows, increases the chances of success. The hook is inserted through the widest part of the band, the band then placed around the minnow at the back of the gills thus holding the bait firm without the hook touching it. With these holders grasshoppers may also be used.—The Campbell Specialty Co., Morrill, Nebraska.

Peachey Process Slicker and Hat

Of the many varieties of raincoats with matching millinery, none are more attractive than the coat and hat illustrated. This is made of crêpe de chine vulcanized by the Peachey process, with a lining of the same shade as the outer fabric. The seams are rendered waterproof by the strapping which is cemented over the stitching, with no ugly marks of paste or glue. The belt is two-ply, the same on both sides. The garment is cut on straight lines, an additional lining of white satin at the top, protecting the most delicate summer apparel.

The natty little hat is on the tam-o-shanter style with a feather at the side made of the crêpe de chine. With this ensemble of matching hat and coat, the most fastidious woman may well defy the changeable summer weather of alternate showers and sunshine, her costume appropriate to either condition. These articles are manufactured by the Peachey Textiles, Ltd., 83 Pall Mall, London, S. W. 1., England, who are represented in this country by The Grasselli Chemical Co., 347 Madison avenue, New York, N. Y., their United States agents.

Raincoat and Hat

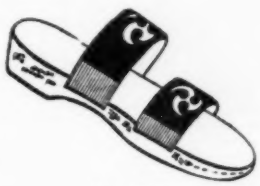
New Sportsman Special Boot

The new Sportsman Special is a hunting and outing boot of medium light weight but sturdy build, reinforced at all points likely to be subjected to wear or strain. The gusset, as well as the quarter, is reinforced by a special ribbed rubber which adds considerably to the appearance of the boot. The sole assures good service because of its thickness and an excellent tread is afforded by the crêpe corrugated design. The heel, being tapered, is less inclined to snag. An especially shaped top does away with bulge and wrinkles about the ankles.—La Crosse Rubber Mills Co., La Crosse, Wisconsin.

Hunting and Outing Boot

Sandals with Elastic Straps

These sandals were originally made for beach wear but speedily became the rage with the school sets and are now used as pajama sandals and for locker room wear in smart country clubs. The goring straps, made of silk elastic furnished by Hub Gore, Boston, Massachusetts, form an attractive ornament as well as attachment, the colors matching those of the soles. The straps permit easy access and cling firmly but comfortably to the feet. The sandals may be obtained in charming, bright colors, such as Chinese blue, scarlet, Nile green and old rose.—Buek & Co., 36th and Filbert streets, Philadelphia, Pennsylvania.



San Clog

The Obituary Record

Former President of Hood Rubber Co.

DURING the first week of April the death occurred of Judge Albert D. Bosson, who had been president of the Hood Rubber Co., Watertown, Massachusetts, from its incorporation in 1896 to the year 1923, when he became chairman of the company's board of directors.

Judge A. D. Bosson

Born in Chelsea, Massachusetts, on November 8, 1853, Judge Bosson was educated in the public schools of Chelsea, at Phillips Exeter Academy, the Boston University Law School, and Brown University, being graduated from the last-mentioned institution in 1875. His first business association was with the law firm of Brooks, Bell, & Storey, while his varied interests, aside from his work for the Hood organization, included the following: Mayor of Chelsea, 1890; Judge of Chelsea District Court, 1892; first president of County Savings Bank, Chelsea, 1890 to 1926; president and director of Boston & Lockport Block Co.; and a director of the following organizations: Naumkeag Steam Cotton Co.; Broadway National Bank, Chelsea; Conveyancers Title Insurance Co.; and Hood Rubber Products Co.

His clubs and various associations included the University Club of Boston, St. Botolph Club, the New England Historic Association, the Genealogical Society, the Sons of the American Revolution, and the Salem Club. He was also a senior warden of St. Luke's Church, Chelsea, Massachusetts. Judge Bosson was an uncle of Frederic C. Hood, the present head of the Hood Rubber Co.

Hodgman Salesman for Twenty-Nine Years

Charles R. Leonard, who died April 16 at his home in Woodside, Long Island, was well known in the rubber industry, having had an unusually long experience as a salesman. For many years manager of the Pará Rubber Manufacturing Co., which was at one time located on East Fourteenth street, New York, N. Y., Mr. Leonard in 1893 became associated with the Hodgman Rubber Co., whose main offices were then in New York City. Holding the unusual record of twenty-nine years of unremitting service with his organization, Mr. Leonard was then retired on a pension because of ill-health.

Charles R. Leonard

Mr. Leonard had made many friends during his long connection with the industry, and was probably one of the best known and liked rubber salesmen of his time. He is survived by his widow.

Former Manager of Horseshoe Tire Co.

J. H. Wright, formerly manager of the Racine Horseshoe Tire Co., Racine, Wisconsin, died at his home in Racine on May 24. He was the father of Clarence H. Wright, president of Wright Rubber Products Co., Racine, Wisconsin.

Head of Innis, Speiden & Co.

Cable dispatches announce the death on May 25 in Malvern, England, of Clement C. Speiden, chairman of the board of directors of Innis, Speiden & Co., 46 Cliff street, New York, N. Y., manufacturers of compounding ingredients used in the rubber industry. Mr. Speiden, who was 60 years old, went abroad last January on a business trip, and was taken ill while in England. Engaged in the chemical business for the past forty years, Mr. Speiden, at the time of his death, was associated not only with the Innis, Speiden organization, but also was president and a director of the Isco Chemical Co., Inc., and vice-president and a director of the Isco-Bautz Co. He is survived by his widow and four children.

Legal Decisions

Customs Appraisers

No. 51770.—Protests 63872–G/68308, etc., of Oscar Leistner (Chicago). Certain novelties classified as toys under paragraph 1414, tariff act of 1922, are claimed dutiable according to the component material of chief value. Opinion by Sullivan, G. A. Abstract 41754, affirmed in United States v. Willenborg (9 Ct. Cust. Appls. 187; T. D. 38013), followed in denying a motion to dismiss a protest as multifarious. The merchandise was found to consist among other things of so-called rubber tongue balls, grotesquely painted to represent a human head with holes for eyes and mouth. On being pressed the eyes and the tongue protrude from the holes. Other items represent a canary composed of paper, feathers, wood, etc., and reed sticks consisting of reeds cut into lengths with paper wrapped around them. The testimony was not convincing that the merchandise is reasonably fit for other purposes than the amusement of children. Illfelder v. United States (1 Ct. Cust. Appls. 109; T. D. 31115) and United States v. Strauss (13 Ct. Cust. Appls.—; T. D. 41025) cited. The protests were therefore overruled.—*Treasury Decisions*, Volume 49, No. 18, page 30.

No. 51810.—Protest 69303–G/68695 of G. W. Sheldon & Co. (Chicago).—Rubber balls classified as toys at 70 per cent ad valorem under paragraph 1414, tariff act of 1922, are claimed dutiable under paragraph 1402. Opinion by Sullivan, G. A. The testimony coupled with the examiner's statement was held sufficient to overcome the presumption of correctness attaching to the action of the collector. Morse v. United States (13 Ct. Cust. Appls.—; T. D. 41432) cited. Expressing some doubt as to the proper classification of the balls in question increased by the decision in United States v. State Forwarding & Shipping Co. (13 Ct. Cust. Appls. —; T. D. 41216) the board sustained the claim under paragraph 1402. G. A. 8807 (T. D. 40210), affirmed in United States v. Stewart (12 Ct. Cust. Appls. 533; T. D. 40734) followed.—*Treasury Decisions*, Volume 49, No. 19, page 13.

Patent Decisions

Ex Parte The Goodyear Tire & Rubber Co. Application for registration of trade-mark for elastic vehicle tires composed wholly or in part of rubber. Filed May 29, 1922, serial number 064,637. Decided December 7, 1925. The applicant had appealed from the decision of the Examiner of Trade-Marks, who had denied registration to the notation "Cross Rib" as used upon automobile tires. The mark having been held merely descriptive of the goods and unregisterable, the decision of the Examiner of Trade-Marks was finally affirmed.—*Official Gazette*, Vol. 346, May 4, 1926, page 3.

News of the American Rubber Trade

Rubber Industry Outlook

LATE government reports indicate a larger dollar volume of business in May than in the corresponding month a year ago. The same is true as regards the sales of manufactured rubber products for the first quarter of this year which were valued at $32,641,000 in excess of the value of the sales for the same period a year ago. However, general weakness persists in the raw material markets. Inventories are large and must move more freely before renewed expansion can take place. The British labor situation had relatively little effect on American business.

Crude rubber production is well in excess of consumption and London and domestic stocks are increasing. The consumption of crude was 885 tons less the first quarter of this year than in the first quarter of last year. It is estimated that the 1926 consumption will be no greater than that of 1925 which totaled 385,000 tons.

The production of the automobile industry totaled 1,599,074 cars in the first quarter. On this as a basis the total output for 1926 is estimated at 4,000,000 cars or 170,000 in excess of the car production of 1925.

Tire output gained somewhat the past month and is now at about 80 per cent. The largest companies are operating but 5 days a week owing to the slow movement of tire stocks. In many instances the smaller companies are working on full time schedules. Such companies as had no surplus of crude rubber on hand when the market collapsed early this year have made no inventory loss and now have the advantage of using rubber costing less than 50 cents.

Tire manufacturers are overstocked. Sales are running from 30 to 40 per cent less than last spring due to several reasons the principal of which are the cold backward spring; the effect of last winter's economy propaganda which advocated economy and repair of tires; and the dealers' expectancy of a tire price cut. Tire prices were guaranteed to dealers up to July 1 and they are not assuming the risk of losses on inventory. Hence the manufacturers hold the bag for the dealers.

Other lines of the rubber industry such as footwear, mechanicals, heels, insulated wire, etc., factories are busy and the outlook encouraging.

Financial

Akron Rubber Stock Quotations

Quotations of May 20, supplied by Otis & Co., Cleveland, Ohio.

COMPANY	Last Sale	Bid	Asked
Aetna com	18½	15½	18
Aetna pfd	93	...	...
Falls com	10	...	9⅞
Falls pfd	18⅞	...	20
Faultless com	37¼	34	40
Firestone com	101	102½	113
Firestone 1st pfd	102	101½	...
Firestone 2nd pfd	97½	97½	98
General com	160	...	155
General pfd	107	...	107
Goodrich com	53	...	...
Goodrich pfd	99¼	...	...
Goodyear com. V. T. C	29¾	28	31
Goodyear pfd. V. T. C	103¼	...	...
Goodyear pr. pfd. V. T. C	106	...	...
India com	31½	...	30
Miller com	44	...	...
Miller pfd	99	98	100
Mohawk com	35	...	37
Mohawk pfd	75	...	75
Seiberling com	19⅜	...	19½
Seiberling pfd	95	...	95
Star com	12	...	12
Star pfd	35	...	...
Swinehart com	9	9	...

New York Stock Exchange Quotations

May 21, 1926

	High	Low	Last
Ajax Rubber, com	9	9	9
Fisk Rubber, com	15⅝	14⅝	15⅛
Fisk Rubber, 1st pfd. st. (7)	79¾	79¼	79¼
Goodrich, B. F., Co., com. (4)	48¾	46¾	48
Goodyear Tire & Rubber, pfd. (7)	99⅛	98½	99⅛
Intercontinental Rubber, com. (1)	14¾	14⅛	14¾
Kelly-Springfield Tire, com	13	13	13
United States Rubber, Com	54⅜	52¾	53⅜
Lee Rubber & Tire, com	9⅛	9	9⅛
Miller Rubber, com. (2)	32	31½	32
Norwalk Tire & Rubber, com. (1.60)	9¾	9¾	9¾
United States Rubber, com	54⅜	52¼	53⅜
United States Rubber, 1st pfd. (8)	104	104	104

Dividends Declared

COMPANY	STOCK	RATE	PAYABLE	STOCK OF RECORD
Boston Woven Hose & Rubber Co.	Pfd.	$3.00	June 15	June 1
Boston Woven Hose & Rubber Co.	Com.	$1.50	June 15	June 1
Converse Rubber Shoe Co.	Pfd.	3½% semi-an.	June 1	May 15
Converse Rubber Shoe Co.	Com.	$2.00 q.	July 1	June 15
General Tire & Rubber Co.	Com.	2% q.	May 1	Apr. 20
Goodrich, B. F., Co.	Pfd.	1¾% q.	July 1	June 15
Goodyear Tire & Rubber Co.	8% Cum. Pr. Pfd.	2% q.	July 1	June 15
Goodyear Tire & Rubber Co.	Pfd.	$1.75q.	July 1	June 1
Hood Rubber Co.	Com.	$1.00 q.	June 30	June 19
Hood Rubber Products Co.	Pfd.	$1.87q.	Aug. 1	July 2
Hood Rubber Co.	New Pfd.	$1.75q.	Aug. 1	July 2
Hood Rubber Co.	Pfd.	$1.75 q.	June 1	May 20
Indic Tire & Rubber Co.	Com.	1¾% q.	July 1	June 21
India Tire & Rubber Co.	Pfd.	$0.625	July 1	June 21
Intercontinental Rubber Co.	Com.	$1.00 q.	May 15	Apr. 30
Miller Rubber Co.	Pfd.	$2.00 q.	June 1	May 10
Mohawk Tire & Rubber Co.	Com.	$1.00 q.	June 1	May 1

Seiberling Rubber Co.

Net sales of the Seiberling Rubber Co., Akron, Ohio, during 1925, after deducting all charges such as cash and trade discounts, rebates, allowances, etc., amounted to $10,569,522.77, making an increase in net sales over the previous year of approximately 40.37 per cent.

Net profit from all sources for the year after the payment of all expenses (taxes, interest, depreciation, allowance for federal taxes, etc.) amounted to $1,244,967.96—equivalent to 11.78 per cent on the net volume of business transacted, or—after the payment of preferred dividends—to $6 per share on the outstanding common stock, valued at $10 per share. Current assets exceed current liabilities to the amount of $2,347,757.21, or a ratio of more than three to one.

New Incorporations

ASTON TIRE COMPANY, February 16, 1926 (Oklahoma), capital $10,000. Incorporators: C. S. Aston, president; H. D. Aston, vice-president and C. A. Aston, secretary and treasurer. Principal office, 424 East Main street, Shawnee, Oklahoma. Wholesale and retail tires, tubes and accessories.

THE ATLANTIC TIRE CO., April 17, 1926 (Massachusetts), capital $100,000. Incorporators and directors: John Schwartz, president; Israel Chernoff, treasurer and clerk and Max Schwartz, all of 100 Greenwood street, Dorchester, Massachusetts. Principal office 312 Columbus avenue, Boston, Massachusetts. To buy and deal in rubber tires, tubes, etc., and to handle, repair and manufacture rubber tires, tubes and patches.

THE BROWN TUBE CORPORATION, May 8, 1926 (Delaware), capital $2,000,000 par value $10. Incorporators: Charles B. Bishop, E. H. Feustel and A. S. Bishop, all of Wilmington, Delaware. Principal office, with the Delaware Charter Company, 900-904 Market street, Wilmington, Delaware. To manufacture, produce, buy, sell, import, export and deal in inner tubes and accessories of every description, and materials of all kinds pertaining thereto.

DEL RUBBER CORPORATION, March 5, 1926 (New York), capital $50,000. Incorporators and officers: Del Nebert, president; David Burke, vice-president and G. G. Chase, secretary and treasurer. Principal office 49 West 64th street, New York City. To engage in the sale of manufactured rubber goods, with the principal line being that of the Seiberling Rubber Co.

H. DIAMOND & CO., INC., April 20, 1926 (New York), capital $100,000. Incorporators: H. M. Hart, Jane Cross and Bessie Lee, all of New York City. Principal office, Manhattan, New York. Crude rubber and products.

GIBBITE PROCESS CORPORATION, May 11, 1926 (New York), capital 1,000 shares par value $100 and 300 shares no par value. Incorporators: Lyle Evans Mahan, Raymond Rogers and H. Levin, all of 115 Broadway, New York City. Principal office, Manhattan, New York. Patented vulcanized rubber articles.

LEONARD & WAGNER TIRE CO., May 3, 1926 (North Carolina), capital $100,000, paid in capital $28,000. Incorporators: C. R. Wagner, C. S. Leonard, F. G. Johnson and Joe H. Sink, all of Lexington, North Carolina. Principal office, Lexington, North Carolina. To engage in buying and selling automobile tires, and all kinds of accessories, both wholesale and retail.

MORRIS COUNTY TIRE CREDIT ASSOCIATION, March 27, 1926 (New Jersey), capital $50,000. Incorporators: Arnot E. Erb, West Blackwell street; Stephen F. Zidarich, Baker avenue; George M. Pierson, DeHart avenue, all of Dover, New Jersey, and James F. Burns. Principal office, Dickerson street, Dover, New Jersey. To buy and sell tires, supplies and automobiles.

NAT KOLODIZ & CO., INC., March 22, 1926 (Massachusetts), capital $5,000. Incorporators and officers: Nathan Kolodiz, president and treasurer, 70 Franklin avenue; Esther Tzizik and Israel Tzizik, both of 16 Summer street, all of Chelsea, Massachusetts. Principal office Chelsea, Massachusetts. To manufacture and deal in rubber and metal and all kinds of waste material.

ALBERT E. OLIVER, INC., May 17, 1926 (New York), capital $10,000. Incorporators: Albert E. Oliver and Freda E. Oliver, both of 24 South Main avenue; and Louis F. Hartmann, 832 Myrtle avenue, all of Albany, New York. Principal office, Albany, New York. Auto tires, rubber boots, etc.

PRO-TEX RUBBER CO., INC., May 13, 1926 (New York), capital $1,000, par value $10. Incorporators: James Golding, 30 Highland avenue, Yonkers, New York; George S. Lord and Sarah Gaines Lord, both of 570 West 156th Street, New York City. Principal office Manhattan, New York. To manufacture rubberized cloth into capes and aprons.

RARITAN RUBBER INC., April 15, 1926 (New Jersey), capital $200,000. Incorporators and officers: John J. Burke, president; Maxwell Kahn, vice-president; Alfred Foster, treasurer and Russell E. Watson. Principal office Jersey avenue, New Brunswick, New Jersey. To manufacture solid tires for automobiles and bicycles.

F. A. SCHULTZ RUBBER MFG. CO., April 30, 1926 (New Jersey), capital $150,000. Incorporators: Frederick A. Schultz, 120 Jefferson avenue, Hasbrouck Heights; John Jackson, 76 Lincoln avenue, Clifton; and Ernest Massey, 74 Sussex street, Hackensack; all of New Jersey. Principal office, Main street, Lodi, New Jersey. To deal in any and all kinds of crude, refined and manufactured rubber, gutta percha, chicle and other gums and like substances.

THE STAR RUBBER CO. OF N. E., April 20, 1926 (Massachusetts), capital $50,000. Incorporators and officers: Joseph R. Healy, president and treasurer, and Margaret M. Healy, both of 4 Walkhill Road, Norwood, Massachusetts; and Catherine Keane, 49 Fenwood Road, Roxbury, Massachusetts. Principal office Boston, Massachusetts. To manufacture and deal in rubber goods, tires, tubes and auto accessories.

THE A. J. STEPHENS CO., April, 1926 (Missouri), capital $250,000. Incorporators and officers: A. J. Stephens, president; C. F. Stephens and T. D. Hinchcliffe, vice-presidents; and N. E. Trego, secretary and treasurer. Principal office, Kansas City, Missouri. To manufacture fan belts, patches, reliners, inner tires, tire flaps, etc.

STUYVESANT TIRE & AUTO SUPPLY CO., April 23, 1926 (New York), capital $5,000. Incorporators: Louis Breitbart, 50 Stuyvesant street, and Fanny Rosenfeld, 201 East 9th street, both of New York City; and Morris Hoot, 88 Vernon avenue, Brooklyn, New York. Principal office, Manhattan, New York. Auto tires and supplies.

M. L. SYLVESTER CORPORATION, INC., April 14, 1926 (New York), capital 25 shares no par value. Incorporators: M. L. Sylvester and A. D. Sylvester, both of 266 Merrick Road, Rockville Centre, New York; and Frederick Veser, 129 Front street, New York City. Principal office, Rockville Centre, Albany, New York. To manufacture auto tires.

FRANK W. WHITCHER CO., April 2, 1926 (Massachusetts), capital $250,000. Incorporators and officers: Frank W. Whitcher, president, 1080 Beacon street, Brookline; Frederic R. LeGallee, treasurer, 16 Bay View avenue, Swampscott; Stephen R. Nichols, clerk, Ripley Road, Cohasset; and Sanford Crandon, 78 Richardson Road, Melrose, all of Massachusetts. Principal office, Boston, Massachusetts. To manufacture and deal in rubber and rubber goods, rubber heels, leather, boots, shoes, soles, etc.

The Rubber Trade in the East and South

The Wichnick-Tumpeer Chemical Co., Inc., specializing in chemicals, oils, and pigments for the rubber industry, has moved its offices from 130 44th street, Brooklyn, New York, to 251 Front street, New York, N. Y.

J. Edwin Davis & Son, specializing in mechanical rubber goods, are now in larger quarters at 41 Union Square, New York, N. Y.

The New York City headquarters of the India Tire & Rubber Co., Akron, Ohio, now occupy the entire second floor of the Alpha Electric Company Building, Eleventh avenue and Thirty-fourth street.

A. Herring Shaw, manager of The Peachey Process Co., Ltd., 83 Pall Mall, London, S. W. 1, has returned to England after visiting the rubber trade in the interests of his company and its United States agents, The Grasselli Chemical Co., 347 Madison avenue, New York, N. Y.

H. C. Harrison, chief technical officer of the St. Helen's Cable & Rubber Co., Ltd., Slough near Windsor, England, was in the United States last month on business for his firm.

A well-appointed motorcoach, owned by the United States Rubber Co., 1790 Broadway, New York, N. Y., spends much of the time on the road between the company's New York offices and the Hartford factory. Provision has been made, however, to bring pleasure to shut-ins, and once a week groups from the New York City Home for Aged Couples are given an enjoyable outing.

The Beaney Rubber Co., Inc., 117 West 46th street, New York, N. Y., has licensed the following companies to make the Beaney self-adjusting tire flaps on a royalty basis: Lee Tire & Rubber Co., Conshohocken, Pennsylvania; Kelly-Springfield Tire Co., Cumberland, Maryland: and Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Canada.

The Henter Corporation, Springville, near Buffalo, New York, is a new company recently organized by Leo A. Henter, president, for the purpose of manufacturing hard rubber products.

Press reports state that the Everlive Rubber Co., capitalized at $600,000, has been organized to manufacture artificial rubber developed in the laboratories of the Syracord Rubber Co., Syracuse, New York. Officers are: Nelson H. Truett, New York, N. Y., president; Dr. Edward L. Livingston, New York, N. Y., vice-president and inventor of the process. Among the directors are, John MacGunnis and Ben Wiles.

At the recent convention and exhibition of the American Railway Association, held in Atlantic City, the Six-Wheel Co., Philadelphia, Pennsylvania, placed on display its new model 57 truck chassis. Specifications include Westinghouse air brakes, Budd-Michelin disk wheels, and 36 by 8 tires. Another unusual model is a 64 bus chassis, a type planned either for city or interurban touring service, and having balloon tires, measuring 38 by 9 as standard equipment.

C. N. Uhl has become associated with the Pennsylvania Rubber Company of America, Inc., Jeannette, Pennsylvania, as special factory representative in the motor bus division. For the past eight years he has been especially interested in this line of work, while for more than eighteen years he has held positions of responsibility with the Goodrich, Firestone, and General organizations.

At a recent meeting of the directors of E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware, Lammot du Pont was elected president, succeeding Irenee du Pont, the latter wishing to be released from the duties of his office in order to devote more time to his personal affairs. The retiring president was made vice-chairman of the board of directors and chairman of the finance committee.

Full-time operations are now being maintained at the factory of the Bakrow-Leatherow Balloon Co., Inc., Fourteenth and Hill streets, Louisville, Kentucky. The organization succeeds the Howe-Baumann Balloon Co., and Richard D. Bakrow & Son, Inc. Walter J. Leatherow is secretary and general manager of the present concern.

The Cooper Corporation, Cincinnati, Ohio, has established two new branches in the South, in addition to those already in operation in Knoxville, Nashville, and Memphis. The two new divisions include one at West Palm Beach, Florida, while the Cooper Tire & Battery Co., under the management of H. W. Shank, is carrying on business at 340 West Flagler street, Miami, Florida. A new Cooper store has also been opened at Atlanta, Georgia.

The Texas Rubber Specialty Co., 803 Franklin street, Houston, Texas, wholesale and retail distributer of mechanical rubber goods, particularly those used by the oil and refining industries, carries Flexitallic gaskets, Pilot and Vulcabeston packing, and a full line of Acme rubber goods, as well as rubber mats and matting, rubber flooring, tubing, etc. In addition to its main establishment in Houston, the company has branch offices in Dallas and San

Antonio, Texas. According to Herbert W. Millmine, president, the company's business has doubled with each succeeding year.

It is understood that A. F. Alexander, formerly associated with the Seiberling organization, is now sales manager of the Cord Tire Corporation, Chester, West Virginia.

W. S. Brooks, formerly branch manager at Philadelphia for the Mason organization, is now in charge of the branch at Buffalo, New York, maintained by the Kelly-Springfield Tire Co., Cumberland, Maryland.

The equipment and plant of the former Doss Rubber & Tube Co., Inc., Atlanta, Georgia, have been acquired by Hirsch Bros., 44 Whitehall street, Atlanta. The factory, originally equipped for the manufacture of rubber tires and mechanical rubber goods, is to be offered for sale.

The Thomaston Cotton Mills, Thomaston, Georgia, have closed a ten-year contract with The Fisk Rubber Co., Chicopee Falls, Massachusetts, for supplying the rubber organization with 10,000,000 pounds of tire fabric yearly. The Thomaston company has also made an agreement with The B. F. Goodrich Rubber Co., Akron, Ohio, for building a new mill of approximately 30,000 spindles, the Thomaston interests assuming entire production. W. H. Hightower is president of the Georgia company.

E. C. Holt, Chief of Rubber Division

Everett C. Holt, formerly assistant to the chief of the rubber division of the Department of Commerce, has been made head of that division, succeeding Paul L. Palmerton, who has resigned.

Eminent Rubber Technologist

Dr. David Spence, the well-known rubber chemist, has been appointed vice-president of The Continental Rubber Company of New York, in charge of development of guayule rubber. About a year ago he retired from the general managership of The Norwalk Tire & Rubber Co., Norwalk, Connecticut, and devoted himself to research in this field.

David Spence, PhD., F.I.C.

Dr. Spence, a native of Scotland, was educated in Aberdeen, graduated from the Royal Technical College of Glasgow in 1902, and from the Jena University in Germany in 1904. He is also an F. I. C. of London. While at the University of Liverpool he was induced to come to the United States in 1909 to develop research laboratories for The Diamond Rubber Co., Akron, Ohio. He continued in this position after the company merged with The B. F. Goodrich Co. In 1914 he became vice-president and general superintendent of The Norwalk Tire & Rubber Co., Norwalk, Connecticut.

Dr. Spence is the author of numerous publications and patents on the chemistry of rubber and translated several works on experimental medicine from the German. He was long connected with the Liverpool School of Tropical Research, and made a reputation for discoveries in medicine, and in connection with the nitrogenous constituents of raw rubber and the darkening in color of raw rubber. He was appointed to institute research in the Department of Economic Biology at University College, Bristol, in 1908; edited the official record of conference at International Rubber Exposition, London, 1908. His scientific society connections include memberships in the American Chemical Society, German Chemical Society, Society of Chemical Industry, Chemists' Club of New York, Society of Automotive Engineers, Société de Chimie Industrielle, and the Royal Society of London, England.

Editor and Publisher of Rubber Age

Paul L. Palmerton has resigned his position on June 1, as chief of the Rubber Division, Department of Commerce, and heading the Palmerton Publishing Co., will become editor and publisher of the *Rubber Age*, New York, N. Y.

P. L. Palmerton

Gaining his experience in rubber manufacturing and merchandising through his connection with the Rubber Association of America, Mr. Palmerton became associated with Secretary Hoover in 1921, while in his work since that time as chief of the Rubber Division he has been instrumental in collecting and disseminating data of much value and importance to the rubber industry. He has ably represented his department at numerous conferences, both at home and abroad, one of these occasions being as a member of the American committee for the Seventh International Rubber Exhibition to be held in 1927.

Mr. Palmerton has also been of especial assistance to Secretary Hoover in connection with the researches conducted by the Department of Commerce regarding the cultivation of rubber, and the securing an ample supply of it for all American needs.

Rhode Island Notes

While there has been no particular rush among the rubber manufacturing plants in Rhode Island during the past month, there has been a fairly good steady activity that has maintained a regular schedule of time and production which has been gratifying in the main. The greatest activity has been reported in druggists' sundries and novelties, although footwear departments have been quite busy.

The Atlantic Tubing Co., Knightsville, Rhode Island, for a number of years engaged in the manufacture of flexible metal and rubber tubing, is to be disposed of by the heirs of Harry Lippitt, either as going plant or at piecemeal sale. Since Mr. Lippitt's death, a few months ago, negotiations have been carried on for disposal of the plant, but the sale is still pending.

The blower in the mechanical roll department of the American Wringer Co.'s plant at Woonsocket, Rhode Island, becoming overheated one night recently, caused an accumulation of rubber dust to ignite. The blaze broke out in the dust receiver and for this reason the only damage was to the piping.

After opening several bids for a contract to supply 2,500 feet of hose for the fire department, the East Providence Town Council voted to purchase 1,000 feet of fire hose from a Boston concern at $1.20 a foot and 1,500 feet from a Providence firm, at $1.22 per foot.

William J. Munro, of 36 Bradford street, Bristol, Rhode Island, who previous to his retirement April 10, 1923, had been more than fifty years with the National India Rubber Co. of that town, celebrated with his wife their golden wedding on May 17.

The Hood Rubber Products Co., Inc., Watertown, Massachusetts, has leased the third, fourth and fifth floors of the building at 97 Dyer street, Providence, Rhode Island, for its selling subsidiary, the Direct Rubber Co.

The Rubber Trade in New Jersey

Tire manufacturers of Trenton, New Jersey, announce that business of the past month did not come up to expectations and they believe that it was to a large extent due to weather conditions. When the weather becomes settled increased business is looked for. Mechanical rubber goods orders have been very good and all mechanical lines are busy. The rubber cloth output has shown favorable gains during the past few weeks, while the manufacture of hard rubber products has also increased.

The board of directors of the Thermoid Rubber Co., Trenton, New Jersey, recently held a reorganization meeting and elected the following new officers: Robert J. Stokes, president and general manager; William J. B. Stokes, treasurer and chairman of the board of directors; Joseph O. Baur, secretary.

The Murray Rubber Co., Trenton, New Jersey, reports that the mechanical departments have shown a greater production than during the spring of last year. While the company suffered the loss of a mail order business of about 40,000 tires a month it is now making up the difference in increased production of mechanical goods.

The Ajax Rubber Co., Trenton, New Jersey, continues to operate at about 75 per cent of normal capacity.

William J. B. Stokes, treasurer of the Thermoid Rubber Co., Trenton, New Jersey, has been reelected by the Trenton City Commission a member of the Sinking Fund for a term of three years.

The Pierce-Roberts Rubber Co., Trenton, New Jersey, is erecting a one story brick building to be used as a press room. Later the company will erect another building to be used for dipped rubber goods. Both structures will cost $37,000. The concern, which manufactures druggists' sundries, suffered a loss of its entire plant by fire a short time ago.

Albert Numbers, president of the Standard Cord Tire Co., Trenton, New Jersey, is a candidate on the Republican ticket for committeeman of the Ewing Township Committee.

The Luzerne Rubber Co., Trenton, New Jersey, reports that business is increasing in all departments.

The Combination Rubber Co., Trenton, New Jersey, states that orders have dropped off a little during the past month, due to the unsettled weather conditions. Officials of the company, however, are optimistic and are looking for a good summer business.

The Thermoid Rubber Co., Trenton, New Jersey, is enjoying a good season, and all the departments are busy. The brake lining department is particularly active.

The patent infringement suit instituted by the DeLaski & Thropp Circular Woven Tire Co. against the Murray Rubber Co., Trenton, New Jersey, which has been pending in the United States District Court for two years, opened on May 11 before Judge Bodine at Trenton. The case lasted three days when the court reserved decision. The plaintiff seeks an injunction restraining the Murray company from using the present type of tire building machines, and an accounting for the profits derived from their use and the damages sustained, also the costs of the suit. The defendant contends that the Thropp patent was surreptitiously and unjustly obtained and further that similar machines were in general use prior to January 12, 1912, when application for the patent was filed.

The Rawhide Products Distributing Co., Kenilworth, New Jersey, manufacturer of Rimliner rim flaps, Rawhide blowout patches and other accessories, has purchased a factory at the above address. In addition to its present sales offices in New York and St. Louis, the company is also planning the establishment of branches in Atlanta, Chicago, and Los Angeles. A. I. Levin is general manager.

The Mitzel Golf Ball Corporation, 480 Henderson street, Jersey City, New Jersey, has been recently established to manufacture a golf ball having certain unusual features. Harvey F. Mitzel, president of the new organization, was connected some years ago with the Mitzel Rubber Co., Akron, Ohio.

United & Globe Sold

The plant and equipment of the United & Globe Rubber Corporation, Trenton, New Jersey, has been sold to B. A. Small, a factory speculator, of Philadelphia, for $118,500. The company's assets were disposed of for $72,000. The sale was later confirmed by Judge Rellstab in the Federal Court.

The United & Globe Rubber Co. was incorporated in 1899 through the combination of the United Rubber Co. (founded by the late Watson H. Linburg, and the late Welling G. Sickel) and the Globe Rubber Co. The principal original stockholders of the United & Globe Company were Watson H. Linburg, Welling G. Sickel, Alexander C. Oliphant and John S. Broughton, all of whom have died excepting Mr. Broughton, who continued actively with the company until the latter part of 1922, when the company was sold to a syndicate headed by G. de la Rigandiere, former president of the Traveller Tire Co., Bethlehem, Pennsylvania.

Up to this time the company enjoyed unusual success, both financially and in reputation for a high standard of rubber products. Subsequently, the Rigandiere Syndicate experienced reverses, finally resulting in a receivership.

The Rubber Trade in Massachusetts

Manufacturing activity in Massachusetts rubber mills shows a slight easing off with the approach of summer, although shipments of tires, tubes, tennis soles, and seasonal mechanical goods such as garden hose have increased to a marked extent.

With the closing of the New England tire plant in Holyoke, there are only three factories manufacturing tires in the state, Fisk at Chicopee Falls, Hood in Watertown, and Converse in Malden. Fisk with much original equipment business has maintained a heavy production during the past few months and reports business ahead of a year ago. Hood tires are sold only to the dealer for replacement business, and the tire division of that company has been building stock for spring and summer demand since the first of the year. Production at present has been slightly curtailed due to the lateness of the spring. Converse curtailed production during February and March, and is at present increasing the tire ticket as the inventory has been depleted by rush shipments during May.

Footwear mills are now in process of shifting production from tennis for summer wear to fall and winter goods, particularly gaiters. Demand on automatic fastener and novelty overshoes, as well as the competitive numbers such as the $2.10 women's gaiter in the 4 buckle type is very heavy, and all factories are sold ahead for five or six months on these items. In addition to dealer business, mail order houses and chain stores have placed large orders, most of these have been awarded to New England factories. This insures steady business and full-time operation until next December.

Rubber heel and sole manufacturers have felt the slackness in the leather shoe industry. Although New England shoe factories reported a larger output of shoes in March than a year ago, shoe factories in other parts of the country reported a lower output in March than in any of the three preceding years. Rubber soles have lately shown a much better demand than heels. Replacements for the cobbler trade have been slow owing to the late spring.

The labor situation is easy, and Federal Reserve figures show an increase in real earnings, which should result in a healthy demand for commodities.

Reclaiming plants are now in good position to take care of their customers owing to plant expansion, and an easing off in demand due to general slowness in the industry. The state of the rubber market has caused a recession from peak prices, but crude prices are a long way from a point where a trend to replace reclaim with crude is possible or likely.

W. O. Hamister, New England representative for Rubber Service Laboratories, Inc., Akron, Ohio, has resigned, his successor being George B. Christiansen.

Walter R. Ritz has been transferred from the New York office to take charge of the New England territory for E. I. DuPont de Nemours Co., Inc., Wilmington, Delaware, with headquarters at 274 Franklin street, Boston, Massachusetts.

Although the annual audit of the Converse Rubber Shoe Co., Malden, Massachusetts, is not yet completed, preliminary figures indicate net profits after taxes and interest, but before depreciation, of $433,000 on sales of $4,835,928, as against $3,928,305 for the year ending March 31, 1925. Forward bookings for fall orders amount to 49,654 cases compared with 37,623 units for this time a year ago. The tire subsidiary reported the best year in its history for 1925-26.

The Tyer Rubber Co., Andover, Massachusetts, manufacturer of rubber footwear and druggists' sundries, shows assets of $1,816,439 in a quarterly statement for the period ending March 31, issued by Walter E. Piper, treasurer. Real estate is listed as $558,565; machinery at $372,100; merchandise at $479,519, and accounts receivable $260,381. Myron H. Clark is president and George L. Lawrence, factory superintendent.

A proposed semi-centennial observance of the establishment of the plantation rubber industry will include a luncheon at the Boston Chamber of Commerce, Boston, Massachusetts, on June 14, 1926, in which rubber men from New England and other parts of the country are invited to participate. At this anniversary meeting the question of a summer outing for the New England division of the industry will be discussed and also plans for the annual autumn dinner in Boston. Quincy Tucker, 126 State street, Boston, Massachusetts, is chairman of the anniversary luncheon.

The Clifton Manufacturing Co., Jamaica Plain, Boston, Massachusetts, specializing in proofed fabrics, announces that Roger Williams has been appointed manager of the company's clothing sales department. N. Lincoln Greene is vice-president and general manager of the Clifton organization.

Executives of the Stedman Products Co., South Braintree, Massachusetts, manufacturers of rubber flooring, have announced a group life insurance plan for the protection of their employes. The total insurance, involving $188,500, and covering amounts ranging from $1,000 to $2,500, has been placed with the Prudential Insurance Company of America.

The J. P. Warren Co., 749 Main street, Springfield, Massachusetts, is a distributer of Dunlop tires in the city of Springfield and the surrounding territory. In connection with its regular business, this sales organization will also act as a Dunlop warehouse, J. P. Warren being president.

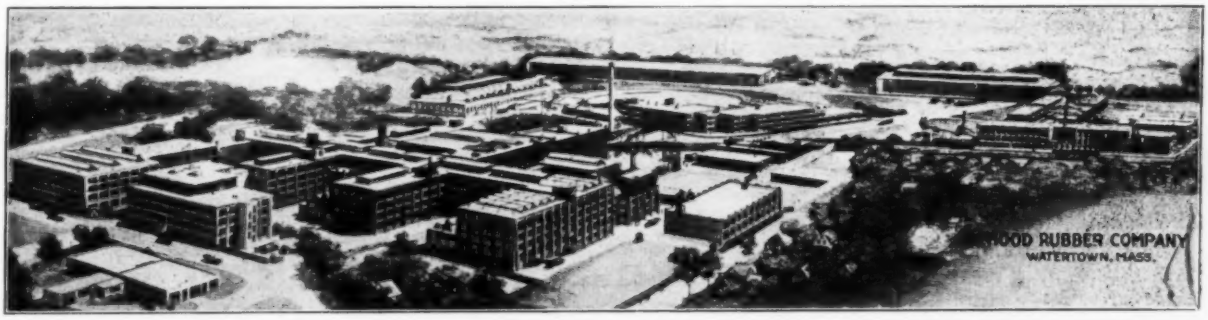
The Firestone Tire & Rubber Co., Akron, Ohio, has established a branch at 337 Forest avenue, Portland, Maine, with G. L. King in charge. The new division includes in its territory the states of Maine and New Hampshire.

Hood Company Forging Ahead

The Hood Rubber Co., Watertown, Massachusetts, has long enjoyed the distinction of being the largest single rubber footwear factory in the world, and during the past few years has become one of the large producers of tires and mechanical rubber goods. During the past year the plant has been materially expanded through the acquisition of a group of adjoining buildings for the heel, sole and development divisions, the leasing from the Government of four buildings of the Watertown Arsenal for shipping and storage purposes and the construction of several plant additions. Located on a plant site of approximately 98 acres, the factory buildings and warehouses now provide a total of 1,631,922 square feet of floor area, to which will shortly be added approximately 165,000 square feet by reason of additions now under construction. Production also has been materially increased during the past year, the present output of footwear alone being approximately 90,000 pairs per day, and present operations have necessitated increasing the total number of employes to slightly over 10,000.

The company's products are distributed through its subsidiary, the Hood Rubber Products Company, Inc., which maintains wholesale branches in forty principal cities throughout the United States. A considerable and growing volume of export business is enjoyed by the company, shipments being made to practically every civilized country.

The company has long been a leader in efficient operations, and much hand labor has been replaced by machinery designed within the plant. A development department, working in conjunction with the laboratory and cost departments, is constantly endeavoring to invent new mechanical devices or determine new methods of operation which will increase efficiency and reduce costs. The saving and profitable use of much of the waste and scrap materials remaining from factory operations has been successfully effected through processes developed by this department. Tests and experiments are made continually in order to increase the quality of the company's products and to bring out new types of rubber goods and footwear.



Through careful and exhaustive studies covering a period of several years, the company has been able to develop unique and practical systems for determining fair adequate compensation for its workers, which operate to properly reward individual effort, initiative and progress.

The company has been interested for many years in employe service work and has pioneered and formulated many of the now generally recognized plans and methods for creating and maintaining a healthy, efficient and stable group of workers. In this connection, the company maintains a completely equipped hospital and branch dispensaries centrally located throughout the plant and provides the services of competent physicians, dentists and opticians. Through frequent periodic physical examinations, the treatment of all cases requiring it, extensive safety and sanitation provisions and a careful follow up of all disabled cases, the incidence of disabling sickness and accident has been reduced during the past five years by one-half, which experience the United States Public Health Service finds lower than that of any other industrial

group of which it has knowledge. Legal advice, educational, thrift and recreational facilities, as well as an unusual death and sickness benefit plan, are provided, the success of which is attested by the large proportion of employes utilizing them and the consequent reduction in labor turnover to the company.

Dating its organization from 1896, the company is one of the outstanding examples in this country of industrial organization and growth and much of its success is credited to the business sagacity of its founder and president, Frederic C. Hood.

The Rubber Trade in Ohio

Although retail tire sales are not up to expectations, the rubber industry as a whole in Ohio is steadily improving. Many rubber companies report that business during May has been considerably better than the same month last year. Heavy inventories of tires and the repeated circulation of rumors regarding forthcoming price cuts have been disturbing factors in the industry. While dealers' stocks are normal, it is estimated that manufacturers have on hand more than 12,000,000 automobile casings, compared with about 8,000,000 at this time last year.

Dealers report that the public has consistently held off buying tires, as would have been done under normal conditions, in hopes of lower prices in the near future. Motorists are patching up their old tires and using them until they are absolutely worthless, rather than buy one or more new tires. It is estimated that one-fourth of the cars in service are without spares.

Despite the reports frequently heard of price cuts, indications are that present schedules will be maintained until July 1, at least. No reduction will be made at that time, in the opinion of Akron authorities, unless the crude rubber market drops to substantially lower levels.

So far the Akron manufacturers have made no effort to speed up production in keeping with the gain in sales. The idea seems to be to keep tire output on an even keel, if possible, and work off in the meantime excessive inventories of finished goods. Factories in the Akron district are working for the most part five days a week or less. Three eight-hour shifts are still employed, but there have been drastic curtailments in some departments. Between 3,000 and 4,000 workers were laid off by the rubber companies early in May.

Goodyear Wingfoot Rubber Heel Week was observed during May 10 to 17 at the Goodyear Tire & Rubber Co., Akron, Ohio. Large advertisements were carried in leading newspapers and magazines, and the shoe repairmen made special efforts to place Wingfoot heels on everyone's shoes. Goodyear has been making rubber heels for 25 years, but it is only within recent years that the business has reached large proportions. Nearly 300,000 pairs of heels a day are turned out at the Goodyear Akron factory, about half of them going as "original equipment" on new shoes.

William E. Pfeiffer, vice-president and general manager of the Miller Rubber Co., Akron, Ohio, who has just returned from a two months' trip through the south and west, says that insofar as its policies and conduct generally are concerned, the rubber manufacturing industry on the whole is on a sounder and better basis than ever before.

"While there has been hesitancy in buying because of the crude rubber situation, the general tendency is toward optimism in regard to the season's business," he states. "Dealers in general are carrying low stocks, with the idea of being able to stock up later at a lower level.

"Business conditions on the entire trip appeared to be very healthy. The Pacific coast appeared to be jubilant because of wonderful crops. I observed that a great many tires were nearly worn out, and that there were few spares."

C. C. Prather, who during the past ten years has served in various capacities with the Goodyear organization, is now associated with the India Tire & Rubber Co., Akron, Ohio, as divisional sales manager.

Frank P. Harrington has been made manager of the repair material and accessory sales division of the General Tire & Rubber Co., Akron, Ohio. Following the completion of certain plant additions, the company is able to give more attention to this particular line of manufacture.

Bruce C. Dodd has become affiliated with White & Co., Akron, Ohio, brokers in crude rubber, and will handle the new petroleum softener "Whico X" manufactured by the White organization for the rubber industry.

A. C. Bowers has been appointed factory superintendent of The Mason Tire & Rubber Co., Kent, Ohio, and will be in charge of production at both the Kent and Bedford plants. Mr. Bowers has been actively engaged in tire production work during the past eight years.

The Cleveland Welding & Manufacturing Co., Cleveland, Ohio, has now added to its products truck rims for pneumatic tires. Solid tire base bands include bases for industrial, cushion, and millimeter tires, while other manufactures include standard channel bases and miscellaneous rings and bands. In the production of pneumatic rims the Cleveland organization is largely responsible for the development of the drop center rim design.

The Simonds Tire Co., 620-22 Market street, Zanesville, Ohio, has recently moved to larger and more commodious quarters at the above address. The organization handles Seiberling All-Tread tires exclusively.

The Dayton Rubber Manufacturing Co., Dayton, Ohio, has instituted a radio entertainment given every Wednesday evening by means of WLW, Crosley radio, Cincinnati, Ohio. Seven performers participate in the "Dayton Thorobred Concert Hour."

A night and day schedule has been maintained since December 30 by The Tuscan Tire & Rubber Co., Carrollton, Ohio, production including tires and druggists' rubber sundries. H. J. Richards is president.

The Premier Rubber Manufacturing Co., Dayton, Ohio, producer of both hard and soft rubber articles, including mats, gaskets, and heels, has extended its line to include hard rubber insulating materials, battery parts, and soft rubber molded mechanical articles. Since the installation of new equipment the plant capacity has been increased 100 per cent. Executives are: Joseph F. Westendorf, president; Harry H. Gerstner, vice-president; John Westendorf, secretary and treasurer; and L. Strobeck, general manager of the company.

The Republic Rubber Co., Youngstown, Ohio, announces that O. S. Dollison has been appointed manager of the company's mechanical sales department, while J. P. Bird becomes associated with him as assistant manager. H. F. Morneweck has been made chief clerk of this division.

President O'Neil Speaks of Tire Prices

Agitation for lower tire prices was answered in an address recently by William O'Neil, president of the General Tire & Rubber Co., before the National Association of Reserve City Bankers at Atlanta.

"The public has never paid over 50 cents a pound for rubber during the recent flurry," said Mr. O'Neil, "despite the fact that rubber went to $1.18 a pound at one time, back to 62 cents, and then up to $1.20, all in the space of six months.

"Tires have not been based on a rubber price higher than 50 cents a pound. Today 60 per cent of tire sizes are selling on the basis of current levels in the rubber market, yet the uninformed talk about the price of the commodity as though we are basing our costs on an inflated market.

"I am not afraid of the British restriction act. Temporarily, it hurts us, but the law of supply and demand will work that out. There is going to be good money made out of rubber planting

within the next few years. Although it takes seven years to grow a good rubber tree, the bud grafting system that has come into effect in Malaya enables the new plantation to produce more largely and more cheaply than the old."

Mr. O'Neil pointed out that the value of rubber manufacturers' goods in the United States ran well over a billion dollars last year. He explained, however, that violent fluctuations in the two principal raw materials—rubber and cotton—make the industry more hazardous than steel or some other industries.

Chemical Equipment Exposition

The Second Chemical Equipment and Process Engineering Exposition held at Cleveland, Ohio, May 10 to 15, 1926, in conjunction with technical sessions under the auspices of Associated Technical Societies of Cleveland attracted a large attendance of manufacturers and technical men. Among the exhibits of special interest to rubber manufacturers were those of the American Hard Rubber Co., Chemical Rubber Co., The Cleveland Worm & Gear Co., General Electric Co., The B. F. Goodrich Co., The Hydraulic Press Manufacturing Co., The Miller Rubber Co., H. H. Robertson Co., The Watson-Stillman Co., and the Westinghouse Electric Manufacturing Co.

President of General Tire & Rubber Co.

The building up in ten years of an organization which now ranks as one of the leading tire manufacturing plants of this country, as well as bringing to the industry a nationally known quality product, is no small accomplishment, and the success attained by The General Tire & Rubber Co., of Akron, Ohio, is in great measure due to the unusual ability shown by William F. O'Neil, president and general manager.

William F. O'Neil

Mr. O'Neil has not, however, confined his attention merely to his own organization, but has been instrumental in establishing certain other Akron industries, including the Akron Rubber Reclaiming Co., and the Akron Standard Mold Co. He retired the first of this year as president of The Ohio State Bank & Trust Co., also of Akron, after having held that position for five years. He is now chairman of the board of that bank. For several years an important figure in the councils of the Rubber Association of America, he was this year chosen as one of its seven directors.

Born in Akron, Ohio, on August 21, 1885, Mr. O'Neil secured his education in the schools of Akron and at Holy Cross College, Worcester, Massachusetts, being graduated from the latter institution in 1907. In 1909 he established the Western Tire & Rubber Co., tire distributers, Kansas City, Missouri. In 1913, he added a factory to that business for the manufacture of tire accessories, and in 1914 discontinued the distribution of tires and devoted the business to the manufacture of tire accessories exclusively, becoming the largest tire accessory factory in the country. In 1915, this business was moved to Akron and incorporated under the laws of the State of Ohio as The General Tire & Rubber Co., with a capitalization of $200,000. From the first, this new undertaking prospered and in less than a year the executives of the company found it necessary to increase the capital stock to $500,000, while factory additions were being erected in order to double the capacity of the plant.

Mr. O'Neil's father, M. O'Neil, had been one of the pioneer merchants of Akron where he founded The M. O'Neil Co., now the largest department store of the Rubber City, but disposed of his interests in that concern in 1912. On December 3, 1915, M. O'Neil joined with his son, William, in the establishment of The General Tire & Rubber Co., the father as president and the son as vice-president and general manager.

During 1922, a year in which The General Tire & Rubber Co. made great advances, the sales were increased by $1,600,000; the surplus was five-fold greater; while constructions to again double the plant capacity were being planned. During this time M. O'Neil retired as president and became chairman of the board and William O'Neil assumed the office as president and general manager which he still holds. Still further extensions to the property were made in 1924 and 1925. The company's annual report for the last year indicates the steady growth of its operations, the gross business for 1925 totaling $18,700,000, an increase of practically 50 per cent as compared with 1924, when the sales were $13,152,000 and profits $1,500,000. The company has paid dividends on its common and preferred stock regularly since its establishment and is the only tire company in the country with such a record of uninterrupted dividend disbursements.

The success attending Mr. O'Neil's management of The General Tire & Rubber Co. is largely due to the policy of merchandising the product exclusively through selected tire experts as distributers. To matters pertaining to the rubber industry in general, and tire merchandising in particular, Mr. O'Neil has given much thought, and his opinions on such subjects are much sought and are considered of great value throughout the industry. His fraternal associations include membership in the Rotary Club and the Elks, while he is also connected with the Akron Chamber of Commerce, the National Chamber of Commerce, and the Rubber Association of America.

Midwestern Notes

J. M. Huber, Inc., 130 West 42nd street, New York, N. Y., manufacturer of carbon blacks, clays, and colors used by the rubber industry, announces that Edward J. Lewis will represent the company in Chicago territory. He will make his headquarters at 9 South Clinton street, Chicago, Illinois, and will handle sales of Aerfloted Arrow carbon black and Suprex clay.

The Stedman Products Co., South Braintree, Massachusetts, manufacturer of rubber flooring, announces a change in the location of its Chicago office, the new address being Suite 1310, Tribune Tower, Chicago, Illinois. H. M. Melville is western sales manager.

The Westminster Chemical Co., specializing in rubber colors and fillers, has recently moved into its new factory at 7323-7325 Woodlawn avenue, Chicago, Illinois. New machinery has been installed and the company's output of rubber substitutes has also been greatly increased. Calvin Stitt is president.

The S. & S. Tire & Supply Co., 126 East Michigan street, Michigan City, Indiana, dealer and jobber in tires, tubes, and accessories, is handling Firestone casings exclusively. During the two years of its existence this organization has twice found it necessary to enlarge its quarters.

Production has again begun at the factory of The Mid-West Rubber Manufacturing Co., Arvada, Colorado, after an interval of two years. Charles W. Clark is president.

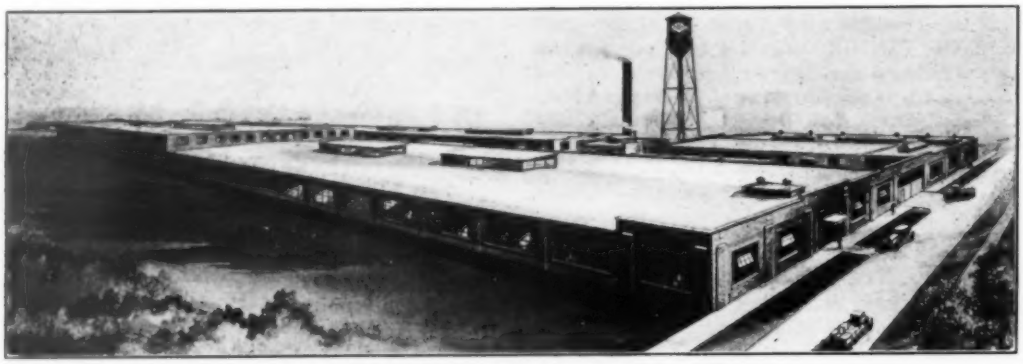
The Kelly-Springfield Tire Co., Cumberland, Maryland, plans to establish another factory at Oklahoma City, Oklahoma, while on May 15 the company opened another depot at Grand Rapids, Michigan.

At the recent annual meeting of the International Rubber Company of America, Anderson, Indiana, the following executives were elected: B. B. Benner, president; E. N. Hill, vice-president and

general manager; E. H. Downey, secretary and treasurer; W. A. Simonson, sales manager; and Oscar Knai, factory manager. The company reports that production in both tires and tubes is increasing daily, and that the manufacture of International balloon tires now represents an important feature.

Union Asbestos & Rubber Co. Builds New Plant

The Union Asbestos & Rubber Co., which ten years ago began the manufacture, in a small way, of railway specialties, has now completed a factory at Cicero, Illinois, having a floor space of over 100,000 square feet, exclusive of 20,000 square feet of warehouse space. Under the trade name of Unarco the company will continue to manufacture a large variety of asbestos goods, these including Insutape and Super-Insutape, asbestos yarns, cloth, and a full line of high pressure steam packings for both railroad and industrial use. The plant machinery was designed and built especially for the purpose of working asbestos.



Plant of Union Asbestos & Rubber Co., Cicero, Illinois

The Rubber Trade on the Pacific Coast

A slight slackening in business was noted in the larger trade centers on the Pacific Coast during May, and rubber lines felt the halting trend in common with other lines. In a few instances, however, some rubber manufacturers and distributers reported a decided increase in sales over the preceding month. The general easing-up was attributed chiefly to over-sold market conditions, which could not fail to remedy themselves soon. Encouraging factors were: easier borrowing rates, greatly-improved agricultural conditions due to exceptionally abundant rains, greater activity in oil, mining and building operations, and a considerable increase in car registration. Tire repairing has been especially active, and many vulcanizers have been adding much to their equipment, while repair material makers have almost without exception been doing particularly well, favored, of course, by the well-sustained price of new tires.

"Watch us grow" is the slogan of the National Association of Vulcanizers recently formed in Oakland, California. While the organization starts with the modest enrollment of seven members, it hopes to expand fast and to ultimately include most of the 29,000 tire repair men in the United States. The association trusts that it may measurably correct many irregularities in its line of business throughout the country, and which were noted in *The India Rubber World* recently; and to not only standardize repair charges, but to also encourage the use of better material and equipment and to promote efficiency generally.

Inquiries among tire manufacturing concerns on the Pacific Coast reveal a remarkably low labor turn-over as compared with many eastern and midwestern factories. In one of the northwestern mills the turn-over is said to be scarcely 2 per cent, as contrasted with 200 per cent in some tire factories east of the Mississippi. Several reasons are given, such as agreeable climatic conditions, modern shop equipment, good wages, high pro rata of home-owners, efficient welfare work, and the fact that factories are far apart, making it less easy for restless workers to float from one shop to another.

The Coast Tire & Rubber Co., Oakland, California, is now marketing its products direct from its own branch stores in Oakland, San Francisco, Los Angeles, Fresno and Sacramento. The sales plan is said to be unique in the Pacific Coast territory, and Louis S. Budo, vice-president and business manager, is confident that the plan will be very successful. The company manufactures 300 casings and 600 tubes daily, and has a thoroughly up-to-date plant. Its financial condition is said to be excellent. Other officers, besides Mr. Budo, are: J. C. Hughes, president; E. H. Russell, secretary and treasurer; and C. E. Armstrong, assistant secretary and treasurer.

The General Tire & Rubber Co., Akron, Ohio, has appointed Charles E. Criss, for the past three years in charge of sales at the factory, as branch manager in Los Angeles, California.

Mid-May daily production at the Goodyear Tire & Rubber Co.'s Los Angeles plant averaged 5,869 tires and 6,499 tubes, with indications of an early and considerable upswing. During the month the company has been moving into the new building just completed on the south side of the main structure at a cost of nearly $1,000,000. The tire and tube departments and the Goodyear Textile Mills are all now on full time, and the working force is being increased steadily. A recent visitor was President Paul W. Litchfield, the new head of the parent Goodyear company in Akron. He was accompanied on his return trip by General Superintendent H. E. Blythe of the Los Angeles factory.

The Lee Rubber & Tire Co., Conshohocken, Pennsylvania, has moved its Fresno branch to 2121 Merced street. V. R. Lehnberg is branch manager and Ralph E. Larson, sales manager.

J. B. Brady, coast manager for the United States Rubber Co., with headquarters in San Francisco, reports spring sales in all lines well above those of a year ago and prospects excellent. He has just returned from the Southwest, where he surveyed conditions in conjunction with J. B. Magee, Los Angeles branch manager.

The Columbia Tire Corporation, Portland, Oregon, recently entertained fifty purchasing agents representing nearly all the leading industries of the state. Alfred A. Aya, vice president and general sales manager, acted as host.

Several of the departments of the Eno Rubber Corporation, 1026-1032 South Los Angeles street, Los Angeles, California, are working overtime to supply the demand for mechanical rubber goods, tire

repair material and patented articles on which the company specializes. Roy R. Musser is president.

C. H. Williams, vice-president and sales manager of the Mason Tire & Rubber Co., Kent, Ohio, and a recent guest of Catlin Wolford, western division manager in San Francisco, has been making a first-hand study of trade conditions in Pacific Coast cities.

The Elgin Boot & Reliner Works, 1126 East 37th street, Los Angeles, California, owned by L. Goodman, is one of the busiest factories of its kind on the Pacific Coast. Tire retreading will be taken up shortly in addition to other lines.

Several large shipments of rubber insulated wire have been made to Pacific coast cities recently by the Okonite Co., Passaic, N. J.; and some considerable orders for paper-impregnated and super-tension cables have been obtained lately in the same field by the Okonite-Callender Co., Paterson, New Jersey.

T. S. Lindsay, vice-president and general sales manager of the Kelly-Springfield Tire Co., Cumberland, Maryland, who has been making a trade survey on the Pacific coast, announces the appointment of Pierre E. Myers, recently branch manager of Seattle, as manager of the San Francisco branch; Frank B. Morrow to succeed Mr. Myers in Seattle, and W. N. Kidwell, formerly San Francisco manager, to the San Jose branch.

Lee S. Woodruff, Pacific coast representative of the McClaren Rubber Co., recently returned from a trip to the factory in Charlotte, North Carolina. He reports sales as exceptionally good. The C. Fred Thompson Tire Co., McClaren distributers, 1239 South Olive street, Los Angeles, California, is exhibiting an old tire recently dug up in Death Valley that had been used by an old prospector twenty years ago. The casing consisted of three thicknesses of heavy belting riveted to two 36 by 4 clincher beads, covered with canvas and attached to which were transverse cleats. This oversized casing was put over the deflated tire and the tube again inflated. The result was a flat-surfaced tire with good traction, quite well adapted to the treacherous desert sands.

M. Senda, who is a Japanese, a resident of Calcutta, India, and one of the large individual rubber exporters in the Far East, is a Pacific coast visitor. He said that he has $2,000,000 invested in rubber plantations which up to last year had not yielded any revenue for nearly six years. He doubted much decline in the price of rubber for perhaps five years.

B. B. McCloskey, Akron, Ohio, has been appointed special representative of the Mohawk Rubber Co. for Oregon with headquarters in Portland.

H. B. Gerrard is now in charge of the branch maintained in Seattle, Washington, by the India Tire & Rubber Co., Akron, Ohio.

The George E. Browning Co., 2602-4 Washington avenue, Ogden, Utah, is maintaining two departments, one as a wholesale distributer in the intermountain states of Lee tires, the other department specializing as wholesaler and retailer in radio supplies. George E. Browning, president of the organization, was recently elected mayor of Ogden.

Upon the completion of a new building now in process of construction, the Hood Rubber Co., Watertown, Massachusetts, will move its Los Angeles branch from 1018 Santa Fe avenue to 1933 Bay street. The Hood organization now maintains forty branches, established in leading cities of the United States.

W. D. Albright, for the past ten years manager at Seattle, Washington, of the branch maintained there by The B. F. Goodrich Rubber Co., Akron, Ohio, has resigned, and has been succeeded by F. D. Ranyard, the latter having been for fifteen years in charge of the Seattle division's mechanical goods department. Other changes include the transfer of Wilson C. Brooks, former operating manager, to a temporary assignment at the Portland, Oregon, branch, he being succeeded by F. G. McCammon of the Denver branch.

The Rubber Trade in Canada

Canadian rubber companies have during recent years exported their products to practically every country in the world, and as a result have been operating in some cases on twenty-four hour shifts. This increase in business was made in the face of soaring raw rubber markets. Last year, although tire prices were advanced five times, Canadian tire makers did not advance prices in proportion to the cost of raw rubber, keeping prices on a basis of around 80 cent rubber. The price of rubber goods for the 1926 season was based on rubber at this price and commitments were made four to six months ahead to have supplies on hand for spring manufacturing schedules. But raw rubber continued to decline, and has steadily dropped. Meantime rubber manufacturers are using up the 80 cent rubber, and although one decline in tire prices has been made this year the public are not buying freely because they anticipate still lower prices.

Notwithstanding the backward season sales of lawn hose have been exceptionally good. With a definite change to warmer weather dealers anticipate an even greater trade. Prices are firm, with no indication of a decline or an advance. Following are the prices in force at present in Toronto:

LAWN HOSE

	Per 100 Feet	
	3 Ply	4 Ply
½ inch	11.00	12.50
⅝ inch	12.00	14.00
¾ inch	14.50	15.75
½ inch corrugated	.....	13.50
⅝ inch corrugated	.....	14.75
¾ inch corrugated	.....	16.50

Less 5 per cent. for 500 foot reels. Sales tax included in these prices.

The present discount on rubber air drill hose is 12 and 40 per cent. The former discount was 8 and 37 per cent. This represents a decline of approximately 10 per cent.

The discounts on rubber belting have been increased five per cent, thus reducing prices in Western Canada by this amount. This is due to continued weakness in the raw rubber market. The new discounts are: Rubber belting, list adopted Feb. 5, 1925—First grade, discount 41 per cent; second grade, discount 53 per cent.

Stocks of white tennis shoes for summer trade are now in the hands of retail dealers. However, some dealers put off buying with the expectation that the jobber will be able to supply them when the time comes. It is the jobber's fault who brought it on himself by conceding the cash discount after the date when the trade was entitled to it. There is nothing new about rubbers. The list issued on April 1st still holds good. It is practically the same as the September list of last year.

The Wingham Rubber Co., Ltd., took over the plant, business and assets of the Aero Cushion Inner Tire & Rubber Co., Ltd., Wingham, Ontario, recently and is making the same products. Demand is good for the Aero cushion tires, especially from truck owners, and the company plans to manufacture other sponge rubber lines. Directors of the company are: A. E. Lloyd, president; D. Falconer, vice-president; T. P. D. Marshall, secretary; E. J. Mitchell, treasurer; J. Hirst, general manager, and William Kerr.

Shareholders of the Canadian Manhasset Cotton Co., Ltd., St. Hyacinthe, Quebec, have voted to sell the company's fixed assets to the Goodyear Cotton Co. of Canada, Ltd., a newly organized subsidiary of the Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto. Capitalization of the new company will be $300,000 in first mortgage bonds and $475,000 in preferred stock outstanding, all of which will go to the Canadian Manhasset Co., Ltd., in payment for their fixed assets.

Among the exhibits at the National Golf Show held recently in Chicago, Illinois, was a splendid showing arranged by the North British Rubber Co., Ltd., Toronto. The exhibit included attractive displays of North British golf balls, bags, clubs, etc.

A very attractive solid brass paper weight has been designed by the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, for

presentation to golfers making a hole-in-one with the Dunlop golf ball in 1926.

The Beaney Rubber Co. of New York has licensed the manufacture of the Beaney flap to the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, as sole distributers for Canada.

E. G. Wilmer, president of the Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, has resigned and is succeeded by C. H. Carlisle, formerly vice-president and general manager. C. B. McNaught has been elected vice-president.

MacTag Rubber Co., Ltd., Montreal, has gone into liquidation, and a petition for winding-up has been granted. George Duclos has been appointed provisional liquidator.

The Federal Rubber Manufacturing Co., Ltd., Toronto, has located in Wingham, Ont., and will extend its manufactures to include rubber matting, hockey pucks, repair kits and patching materials.

The name of the Canadian Consolidated Rubber Co., Ltd., Montreal, has been changed to the Dominion Rubber Co., Ltd. This does not affect the personnel or policy of the organization in any way, but has been effected for the purpose of creating a closer relationship between the name of the company and that under which its goods have been known to the trade.

The Northern Rubber Co., Ltd., Montreal branch, has removed from 68-70 St. Antoine street to larger quarters at 224 Lemoine street.

The Columbus Rubber Co. of Montreal, Ltd., will move the Calgary branch to more commodious premises at 127 7th Avenue East, Calgary, Alberta.

The "Fleet Foot Book of Sports for Boys and Girls" issued by the Dominion Rubber Systems, Ltd., will be welcome advertising help for dealers to hand out to their young customers. It is a 48-page booklet containing information and suggestions about outdoor sports and activities that any healthy boy or girl will be keenly interested in.

J. W. McConnell, well known in Canadian financial circles, was elected a director of the Canadian Consolidated Rubber Co., Ltd., Montreal, at the twentieth annual general meeting. Other directors were reelected without change for the ensuing year.

The Canadian Consolidated Rubber Co., Ltd., Montreal, has issued the annual report for the year ended December 31, 1925. Sales amounted to $16,791,383, compared with $13,749,497 for 1924.

Two bowling teams of the Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, created a fine record recently, when Goodyear No. 1 team won the championship of the Toronto Industrial Association. Goodyear Team No. 2 landed the championship of the Lakeshore League.

Effect of Automobile Tariff Changes

C. H. Carlisle, vice-president and general manager of the Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, has made the following statement regarding the proposed changes in Canadian tariff as affecting his company:

The Budget does not change the duty that has existed on tires imported into this country.

About 60 per cent of the tires that we manufacture are exported to the different countries throughout the world. This business is not affected.

None of our mechanical business such as belting, hose, packing, molded goods and rubber heels is affected, either domestic or foreign.

If the Budget is enacted in its present form and would result in the closing of the car manufacturing plants in Canada we would be affected in the tires supplied to car manufacturers for original equipment of cars for domestic use.

We would lose the original tire equipment on Canadian-made cars for the export market.

We anticipate that when the Government gets full and authentic information concerning the car manufacturing industry it will rearrange its Budget so that the car manufacturers will not be compelled to close their plants.

Kaufman Rubber Co. Laboratory

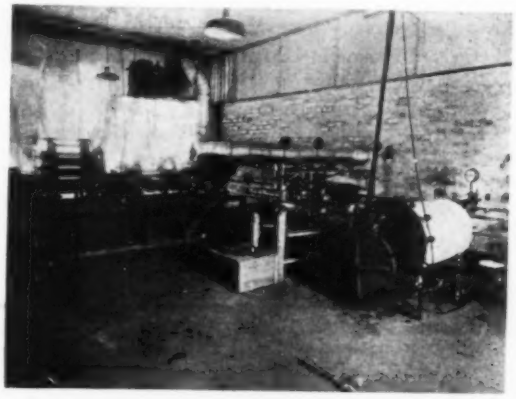
The Kaufman Rubber Co., Kitchener, Ontario, manufacturer of superior quality rubber footwear, has recently completed the installation of a chemical laboratory and experimental department for material and process control, compounding and development work. This department, one of the most complete and modern

Analytic Control Laboratory

of the kind in Canada, is in charge of J. C. Howard, chief chemist, who occupies ample quarters located on the second floor of the main office building which is well lighted and ventilated. The exterior surroundings are rendered particularly attractive by shade trees.

The analytic laboratory is spacious, and thoroughly equipped. The work of chemical control follows a definite system of testing designed to maintain the quality of production by testing daily all the materials, compounding ingredients, the compounds in process, and finished goods. Steam, water and compressed air are piped to all the laboratory benches, and in general every analytic facility in the way of apparatus has been supplied for the staff.

In the experimental department machinery has been provided for the development of compounds, the trial of accelerators and physical testing of cured samples. This machinery comprises a motor driven mill line operating an experimental mixing mill and



Experimental Department

calender. The vulcanization apparatus includes platen presses for molding test samples and a cylinder vulcanizer for dry air, steam and pressure cures.

The facilities of the laboratory are ample both for control and research work as regards compounds, varnishes, problems in vulcanization and developments in footgear structural features.

The Rubber Trade in Europe

Great Britain

Now that the great strike is over and strenuous efforts are being made in Great Britain to restore more normal conditions, the leaders in the various industries are apparently reviving their energies and are looking forward with somewhat more courage to the future. The above also applies to the rubber industry where prospects remain favorable, particularly for the planting division. Indeed some of the plantation companies, whether wisely or not, are declaring very large dividends.

New Rubber Restriction Measures

The announcement from the Colonial Office regarding the percentage of standard production of rubber which may be exported during the quarter beginning May 1, 1926, has apparently aroused less discussion than the raise in the standard price. In a recent issue of *The India-Rubber Journal* an editorial entitled "Standard Production Again Increased" contains the following:

As we anticipated, the percentage allowance for export for the quarter commencing May 1 has been left unchanged, while, as we also anticipated, provision has been made for greater elasticity in the assessment of standard production. More surprising is the decision to reduce the exportable quota by 20 per cent after August 1 if the average price of rubber for the quarter commencing May 1 falls below 1*s* 9*d* per pound. No statement as to further policy beyond August 1 has been made, but this announcement provides a sufficient indication of official determination to keep the situation in hand. Presumably the omission from the original Stevenson scheme legislation of any plan of procedure to be followed once standard production had been reached is held to leave the way clear for a fresh point of departure to be selected.

When considering the prospective cut of 20 per cent (which is due only in case of a substantial decline from the average values prevailing during the quarter just ended) it must be remembered that the Colonial Office recently intervened to grant a 5 per cent increase in the exportable quota before it was due, while it has also on several occasions authorized upward revision of the standard product assessments. In the announcement of the latest decision it is impossible not to recognize a strong hint that the liberality of the present and recent past will be held to justify the exercise of a correspondingly drastic initiative in the other direction should it be called for.

As the guest of honor and chief speaker at the luncheon held at the Hotel Cecil, London, on March 19 by the American Chamber of Commerce, H. Eric Miller, in explaining present conditions in the rubber industry, said in part:

You must realize too that this industry is not left solely in the hands of producers and manufacturers, that there are third parties who come between—the speculator and the dealer. The speculator certainly has no interest whatever in the well-being of the industry; what he is concerned with is whether there is money to be made out of his operations in the industry. I think that Mr. Hoover, and any American critic of the British producers and the British Government, seem to overlook the fact that the speculator does accentuate very pronouncedly the inevitable trend of the facts, and if the speculator could be eliminated, or his activities could be reduced, then I think there is some prospect of our being able to keep this industry running on a more level keel. . . . . It is purely a gift of the gods that the rubber industry happens to be so useful to the British Empire at the present time in helping to settle our debts to the United States; it is not anything which has been deliberately arranged. I do not think we can claim credit for such wisdom as that.

It is only fair to indicate the American point of view as shown by quoting in part from an editorial entitled "Tightening Rubber Control":

Although the results obtained from the Stevenson measure exceeded all reasonable expectations, and although the abnormally high, uncertain and fluctuating prices for crude rubber have been a genuine problem, it could be said that the trouble was in good part attributable to conditions of demand that could neither be foreseen nor controlled under any circumstances by organizations of producers. Now, however, the situation is different. With prices still far above what would once have been regarded as profitable levels, the ambitious aims of the growers have changed to conform to the new situation. They want now to guarantee not only fair returns but high returns by raising the standard price to 21*d*, whereas it was originally only 15*d* per pound.

Can anything have happened in the interim to justify a percentual increase of such magnitude on the ground of increased production costs?

A further expression of opinion is that of the United States Department of Commerce:

The continued price fixing of rubber by the British colonial authorities under the revision of the Stevenson Act as recently announced will simply mean continued conservation in the use of rubber by American consumers, who comprise 70 per cent of the world's consumption, and more activity in reclamation of used rubber and in securing our own sources of supply.

Institution of Rubber Industry Awards Diplomas

Certain members of the Institution of the Rubber Industry have been granted diplomas in recognition of work accomplished or special services to the rubber industry. Upon recommendation by the examination board, fellowship diplomas were awarded to twenty-two candidates, while associateship diplomas in connection with general rubber technology were granted to ten others. Six candidates also received associateship diplomas for work in engineering, and five others for science. While the above-mentioned diplomas were awarded without examination, two others were granted after the candidates had taken an examination in rubber technology. A copy of the examination paper appears below.

EXAMINATION IN RUBBER TECHNOLOGY

The candidate is expected to answer five of the following eight questions:

1. What do you understand by "Vulcanization"? State approximately the date of its introduction. Why is it necessary in rubber manufacture?
2. What abnormal conditions or constituents of raw rubber are likely to lead to slow curing? What steps would you take to rectify this defect?
3. Mention three examples of each of the following types of compounding ingredients: Pigments; Reinforcing Agents; Inorganic Accelerators; Organic Accelerators; Softeners.
4. Describe briefly the construction of a three-bowl calender and state how it is used in (a) the production of plain rubber sheet and (b) "Frictioning" rubber on cloth.
5. What precautions are usually taken to avoid the scorching of rubber stocks during and after the process of mixing, calendering and forcing?
6. The following results were obtained in a tensile test on a sample of rubber 0.20" wide by 0.15" thick:

   Load at break ..... 70 lbs.
   Elongation at break 250%

   Calculate the breaking strain per square inch. From the above results, what type of compound would you expect this to be?
7. You are given the following formula for a rubber mixing:

		Per Cent
Rubber	(sp. gr. = 0.92)	54
Sulphur	(s.g. = 2.0)	3
Litharge	(s.g. = 9.3)	5
Zinc oxide	(s.g. = 5.6)	8
Lithopone	(s.g. = 4.1)	18
Magnesium carbonate	(s.g. = 2.2)	12
Total		100

   Calculate the approximate specific gravity of the stock and give the percentage (by volume) of rubber present.
8. Give an account, in general terms, of the official regulations applying to the use of the following materials in rubber works: (a) Litharge, (b) Rubber Solvents.

British Rubber News

International conferences, both technical and scientific, will represent important features of the International Rubber Exhibition, to be held in Paris, France, from January 21 to February 6, 1927. Subjects to be discussed will be arranged under two heads, one representing the interests of rubber, and the second, other tropical products. Directors of the India Rubber Manufacturers' Association, in an attempt to make British goods better known in foreign markets, have sent out a stirring appeal to association members to participate in the coming event.

A statement sent out by the Mechanical Section of the India Rubber Manufacturers' Association under date of April 1, 1926, announces that there is no prospect of any reduction in the present British prices of mechanical rubber goods, and, further, that no such reduction is expected to occur until the price of crude rubber has fallen below 2*s* a pound and remained at that level for a period of three months.

John Lang, Ltd., 6 Lloyds avenue, London, E. C. 3, is in no way connected with an organization soon to begin business under the name of John Lang (Crude Rubber). John R. Briggs is at present sole director of the first-mentioned company.

Germany

In reviewing the results of 1925, it becomes apparent that Germany has developed into an important market for manufacturers of rubber. The imports in 1925 amounted to 2,132.6 metric tons—greater than for any year since the war—as compared with 873.5 tons in 1924, 255.8 in 1923 and 427.2 in 1922.

Leading American, British, Canadian and Italian manufacturers were able to establish their lines in 1925, chiefly due to the discontinuance of import prohibitions and the revision of the customs tariffs.

Germany imported rubber goods of every class from America, the total value of American shipments being $1,360,604. The most important item was scrap rubber amounting to 10,114,806 pounds, value $504,066, whereby Germany became America's biggest customer for scrap rubber during 1925. Tires ranked next on the list of imports from America, the totals for all kinds of tires and tubes being 25,814, valued at $351,070. Next came footwear, 161,763 pairs, value $210,980; rubber toys 59,334 pounds, value $97,489; rubber thread, 55,458 pounds, value $62,511; fabrics, 59,347 square yards, value $33,834; tire repair materials, 42,770 pounds, value $23,816.

Among the lines in which German competition is prominent may be mentioned rubber hose, exports of which in 1925 were second only to the United States, being 3,305,577 pounds, value $1,451,086. During the same year America's exports of hose were 5,348,859 pounds, value $2,097,951. Germany is also a leading competitor in footwear and heels, belting, cycle tires, piece goods, surgical goods, etc.

New Rubber Goods

The firm of Peter Leyendecker, Köln-Ehrenfeld, has put on the market an improved machine for pleating rubber strips and at the same time applying these pleated strips to the required articles. The same firm has also introduced a new sheet rubber cutter electrically heated. Up to 30 sheets can be cut at one time.

A new use for spare tires for small automobiles has been found. Two spares are placed in the back of a seat for two in such a manner as to afford cushioning and support for the back.

The valve opening in the bottom of the felly frequently permits the penetration of moisture. Therefore, of late a special rubber ring is being inserted between the safety-bridge of the valve and the bottom of the felly. This internal washer aids substantially in securing a water-tight closing of the valve opening and felly and is urgently recommended by the Continental company.

Price of Tires Reduced

From April 12, the prices for all kinds of tires have been reduced, the reductions ranging from 8 to 13 per cent of recent sales prices, according to grade. Prices had to be cut owing to the present existing conditions, despite the fact that on the whole the cost price is actually higher than the selling price. Indeed this is probably the case with every tire manufacturer in Germany. Practically every factory has rubber and fabric in stock or yet to be delivered, which were secured at prices considerably above those quoted on the market to-day.

Consumption of tires at present is considerably below that of last year and there seems to be no prospect of the demand increasing to any great extent so that it is estimated that only about 60 to 70 per cent of last year's tire output will be sold this year.

The existing factories could easily produce many times their present output, and in view of the limited demand, the whole quantity could be manufactured in a few factories. This circumstance suggests the possibility of the tire industry following the example of other industries and pooling the orders and then distributing them among a certain number of manufacturers, if the present condition endures for any length of time.

It is to be noted, however, that dismal reports of bad business do not appear to prevent new firms from embarking in the manufacture of pneumatic tires.

German Company News

The anxious time through which German manufacturers passed is in a measure reflected in recently published company reports from which it appears that several, even among the better-known firms, have not turned out dividends for the business year just ended.

Of this number may be mentioned the Mittelland Gummiwerke A.-G., Hannover-Linden. Foreign competition made it impossible for the firm to raise its prices to correspond more nearly to the high rates of the raw materials. This together with high taxes and financial stringency made 1925 a very difficult year for the company and for that reason no dividends were declared for that period.

The Mannheimer Gummi-Guttapercha- und Asbest-Fabrik A.-G. Mannheim, reports that though the turnover during 1925 was almost one million marks more than in 1924 and the gross profits were 47,124 marks higher than in 1913, taxes and other levies made such inroads into the profits that out of gross profits of 800,887.15 marks, net profits of only 4,679.96 marks remained. In consequence of this, the business year 1925, like 1924, passed without any distribution of dividends.

The Leipziger Gummiwarenfabrik vorm. Julius Marx, Heine & Co., Leipzig, will close its balance with a considerable loss. This comes on top of a loss of 99,930 marks for 1924. The company is offering creditors a settlement outside the court.

Peters Union A.-G., Frankfort-am-Main, reports that the effects of the general depression in business were only felt during the last two months of its business year. The first ten months found all departments of the concern working to capacity. Net profits were 1,018,686.97 marks and a dividend of 8 per cent was declared.

The Hackethal Draht-und Kabelwerke A.-G., Hannover, states that they are well occupied and that sales during the first months of the current business year increased again. Over the business year just closed a dividend of 5 per cent was turned out.

The Association of German Chemists, Hannover-Kleefeld, Schellingstrasse 1, is considering the advisability of holding an "Achema" in Essen during the coming year, and with this in view has been sending out questionnaires to the various industries concerned. The city of Essen represents not only a center of the chemical industry, but also of others having a close connection with it. The Achema Yearbook, for 1926, published by Dr. Max Buchner, with the collaboration of various scientists, will appear this year as usual.

AFTER AN INTERVAL OF THIRTEEN YEARS, RUBBER OCCUPIED during 1925 the second place in the list of Brazil's exports, or 191,803 contos, the highest figure since 1912 when such exports were valued at 241,425 contos. While the increase in quantity over 1924 was only 1,969 tons, the value rose from 79,212 contos to 191,803, or approximately 142 per cent. The average export value per ton of rubber in 1925 was 8,149 milreis, compared with 3,673 milreis in 1924. The par value of the milreis is $0.32. Shipments of cotton, Brazil's third largest export commodity, increased 200 per cent in value in 1925, as compared with 1924.

The Rubber Trade in the Far East

Malayan Standard Production

PROVISIONAL figures of standard production of rubber for the Malayan restriction area in the fourth restriction year have been published by the Federated Malay States Government, and are given as 294,810 tons. The Singapore and Penang figures are 516 tons per month, while the exportable amount is 100 per cent of standard. Therefore, the total for all Malaya is 301,002 tons per annum. This announcement has come as a more or less unpleasant surprise since it had been understood that standard was about 285,000 tons, that is 16,000 tons less for the year than it now appears to be.

It is, of course, an open question as to whether Malaya will actually be able to reach this standard. The opinion here is that if conservative methods of tapping, that is at most alternate daily tapping, are adhered to the amount produced will fall below standard; and certainly there is no lack of urgent advice to planters not to deviate from this system. But this, of course, is no guarantee that if circumstances seemed to warrant it, a majority of the planters would not tap to capacity. In certain sections today, production would undoubtedly be higher than it is were it not that the labor situation acts somewhat in the nature of a restrictor. To be sure it is improving, but still complaints are numerous, more especially in the neighboring districts of Singapore, where it is charged that the higher rates offered by the Naval Base authorities are attracting numbers of laborers and are tending to force up wages on estates.

Possibility of Over Production

A good deal has been written of late on the possibility of overproduction. If Ceylon and Malaya work up to their respective standards, output from the Dutch colonies increases this year by 10 per cent and production by other countries aggregates 70,000 tons, it is estimated the total output for 1926 will be 145,000 tons more than in 1925.

However, it is extremely doubtful whether that figure will be reached. Thus, while the exportable allowance for the first quarter of the fourth restriction year ended January 31, 1926, totaled 70,325 tons, only 60,710 tons were actually exported, that is, 9,615 tons less than was permissable, and this at the time when highest prices prevailed. Again in February, 1926, the exportable amount for the Straits Settlements (excluding Penang and Singapore) and the Federated Malay States was 16,792, the amount actually exported at minimum duty was 15,756 tons; Kelantan could have exported 590 tons but shipped only 341 tons; Johore was entitled to 5,374 tons, but exported 4,214 tons at the minimum rate of duty. So that some 2,400 tons less were shipped than was permitted.

Regulating Rubber Export

The Malayan Planters' Association will, at a general meeting, consider the question of the continuation of export control when the following motion will be submitted:

This association urges strongly the retention for some time of the existing legislation regulating rubber export and that the releases under it should not exceed 100 per cent, but that, in order to remove as far as possible inequities arising from the aplication of the present rules relating to assessment: (a) the rule concerning maximum assessment should be rescinded; (b) the scale for holdings under 25 acres be amended by substituting 400 and 200 pounds per acre for the present maxima of 320 and 160 pounds per acre for mature rubber and rubber in bearing but not mature, respectively.

It is recommended that (a) and (b) be made effective from May 1 next, and it is estimated that this will increase standard production by 5 per cent. This association also urges that the scale of releases be modified so as to become more elastic and quicker in effect.

Large Rubber Dividends

The recent wave of high prices is reflected in the generous dividends turned out by a number of companies for the past year's working. Thus the Tapah Rubber Estates, Ltd., state that net profits for the year ended December 31, 1925, were $241,312.85. Two interim dividends of ten per cent each had been paid out in the course of the year, which with a final dividend of 20 per cent gives 40 per cent for the year.

The Haytor Rubber Estates, Ltd., distributed dividends totaling 45 per cent. The output over 1925 was 162,864 pounds against 103,477 pounds in 1924, and 95,556 pounds in 1923. The average gross selling price per pound was 2*s* 0½*d*, 1*s* 3*d* and 1*s* 3*d* in 1925, 1924 and 1923, respectively; the all-in cost per pound was 7¾*d*, 10½*d*, and 11*d* in 1925, 1924 and 1923, respectively, while during those years the net profits came to 1*s* 4¾*d*, 4½*d* and 4*d*, respectively.

Jebong (Perak) Rubber, distributed 40 per cent for the past year. This firm had no forward contracts and was able to take full advantage of market conditions.

The Seafield Rubber Co., Ltd., announced a final dividend of 22½ per cent, which brought the total to 30 per cent for the year. The average price per pound obtained during the year was 2*s* 8¾*d* against all-in cost of 10*d* per pound. The chairman, discussing price fluctuations, said he thought it would help matters if some concerted action among large producers were brought about whereby sales are not pressed when the market's power of absorption is temporarily weakened.

Malayan Acreage Production Revised

The British Colonial Office has announced that during three months beginning May 1, 1926, the maximum limit of 500 pounds an acre, provided under the regulations applicable to the assessment of estates of more than 25 acres in Malaya, shall be abolished.

The maximum limit for the assessment of standard production in the case of small holdings will be raised to 500 pounds an acre for mature rubber and 200 pounds for rubber in bearing but not mature.

Ceylon

The problems of spotting of crêpe and rust on sheet rubber appear to have been satisfactorily solved. With the introduction of paranitrophenol it is believed that the problem of mold on sheet, which at present gives the most trouble, will also be definitely settled.

New Method of Contour Terracing

A Ceylon planter, C. E. A. Dias, has been experimenting with a system of contour planting for new clearings, and suggested by methods used in Italian vineyards. The Italian method of flat contour terracing was not satisfactory as it did not prevent erosion. Mr. Dias, therefore, replaced the flat terraces by platforms, also built to conform to contours but dipping back into the hill, and forming a depression capable of trapping all the water falling on a day of heaviest rainfall.

The method of planting up an area on the contour platform system is to peg out a series of level terraces with the road tracer following the contour of the hills. Holes are then dug where the new plants are to be put, the holes being about two feet by two feet, and then are filled with top soil taken from the hill side of the pegs. For the platforms, the soil is removed from behind the pegs to a distance of five or six feet and to a depth of one foot

below the level of the pegs. The soil thus removed is built up in front of the pegs, forming a platform which has a slope of one in six toward the face of the hill. Each platform is from nine to twelve feet broad, the base on the hill face being two feet lower than the edge. The valuable surface soil is thus buried so as to be accessible to the roots of the young rubber plants, while the subsoil is exposed on the surface. After the contour platforms have been cut, cover plants are planted.

Budding an Old Hevea Tree

Another interesting and successful experiment carried out by Mr. Dias was budding an old rubber tree, 5½ feet in circumference and with bark badly diseased with canker. After several failures a bud from a high yielding tree was successfully grown near the junction of the big lateral root with the trunk of the tree. After the bud had taken, the trunk of the diseased tree was cut down as near as possible to the bud.

In Malayan estates many diseased rubber trees have been cut down and new plants put in their place. This method exposes the new tree to the danger of developing root disease caused by the old roots which are left in. Furthermore, since the new tree is not planted on virgin soil, it will take eight to ten years to yield latex. Mr. Dias' method, it is claimed, eliminates danger from root disease and then the new tree will be tappable in about three years. Finally, since a bud from a high yielding tree has been used, it is reasonable to suppose that the new tree will also be a good yielder.

Netherlands East Indies

Forward Rubber Sales

According to figures published by the Central Bureau of Statistics, the following amounts were sold forward at fixed prices by estates working in the Netherlands East Indies:

	NON-BRITISH		BRITISH		TOTAL	
	No. of Estates	Half kilos	No. of Estates	Half kilos	No. of Estates	Half kilos
1925....	63	32,784,480	67	18,469,498	130	51,253,978
1926....	51	18,119,075	69	19,894,690	120	38,013,765
1927....	9	1,246,254	30	2,501,740	39	3,747,994
1928....	1	347,000	3	60,960	4	407,960

The prices, in guilders ($0.40) obtained by estates per half kilo (1.1 pounds) were as follows:

	NON-BRITISH		BRITISH		General Average
	Range	Average	Range	Average	
1925.....	0.685-1.625	0.8697	0.825-1.65	1.0958	0.9513
1926.....	0.70 -2.68	1.2681	0.935-2.145	1.3588	1.3095
1927.....	0.70 -1.775	1.3747	1.07½-2.09	1.5235	1.4740
1928.....	.....	1.4860	1.375 -1.62½	1.4772	1.4847

In the figures for British estates for 1925, ordinary sales are included in the forward sales so that the actual average price for forward contracts probably was lower than that given in the above tables.

Of the estate output for 1925, about one-fourth, therefore, was sold forward. It is interesting to note that the British estates have sold more forward out of 1926 and 1927 crops than the Dutch and at higher prices too.

Besides the above amounts sold at fixed rates, at least five non-British firms sold at least 2,734,428 half kilos forward out of crop 1925 at average London market prices, either with or without a maximum or minimum. Of these five firms, three closed latex contracts. Eight non-British estates sold 7,386,160 half kilos at the average monthly London market price, these sales including six latex contracts.

In all, 46,061,857 half kilos were sold forward by 122 estates out of crop 1926.

Of crop 1927, at least 7,500,660 half kilos were sold at market prices, which with the 3,747,994 sold at fixed prices, makes 11,248,634 half kilos in all.

Of the 1928 crop, 7,500,640 half kilos were sold at average monthly prices, which with the 407,960 mentioned above in the table and sold at fixed prices, brings the total for the year to 7,908,600 half kilos.

For 1929, the total sold forward at average monthly prices is 6,034,208 half kilos. Most of the contracts at market prices were closed by non-British estates and include a number of latex sales.

Netherlands' Planting Notes

It is reported that the Firestone company intends to establish a factory for remilling native rubber. It has not yet been decided where this factory is to be started but Palembang in Sumatra or Banjermassin in Borneo seems to be under consideration at present.

The sprayed rubber factory of the Anglo-Dutch Plantations of Java Ltd., which is exploiting the Pamanoekan and Tjiasem territories, commenced operations on February 1, 1926. If this installation gives satisfactory results, it is intended to work up the latex produced by all the estates in the above-named districts. The Anglo-Dutch, be it mentioned, is the first planting concern to undertake the manufacture of sprayed rubber in Java. In Sumatra several companies have already taken up this new method of preparing rubber.

According to reports the Netherlands-American Rubber Plantation Co., recently formed by J. N. Burger, Amsterdam, with a capital of 6,000,000 guilders (1 guilder = $0.40), is to begin the exploitation of 10,000 bouws (bouw = 1.74 acres) of land in the Lampongs, Sumatra, this year.

The Central Bureau of Statistics of Netherlands East Indies recently published first estimates of estate rubber production in these colonies for 1926. According to this estimate, Java and Madura will produce 50,000 metric tons, and the other possessions 68,000 metric tons, of which East Coast of Sumatra alone is expected to contribute 53,000 metric tons. No figures for native rubber production for 1926 can be given as natives are now storing their rubber due to the lower prices prevailing, so that even export figures cannot be used as a satisfactory basis for a study of production.

The Rubber Cultuur Maatschapij Kendeng Lemboe sold forward 1,150,000 half kilos out of 1926 crop at the average price of 113 cents (Dutch currency), per half kilo, f. o. b. Java.

The Cultuur Mij., Kali Besar, estimates a 1926 crop amounting to 560,000 half kilos. Of this 260,000 half kilos have already been sold forward at 2 guilders per half kilo.

The N. V. Rubber Cultuur Mij Koebang Kangkoeng has been formed to exploit the estates Oedjong Manik and Bodjong II, together covering an area of 507.5 bouws (bouw = 1.74 acres.)

The *Batavia Nieuwsblat* discussing the rubber situation in the Dutch East Indies, calls attention to the fact that natives in Java, noting the prosperity rubber has brought to Djambi and other provinces in the outer possessions, have taken up rubber, too. The chief districts where natives are now planting rubber are Bantam, Batavia and the Preanger. Before long thousands of acres of new rubber are looked for from this movement and a native rubber industry in Java is expected to be of more importance than that in the outer possessions since the Javanese stand considerably higher in civilization than the other native races in the Dutch colonies and their plantations and product will receive more care than is generally bestowed by natives in Sumatra for instance.

Indo-China

The Government of Indo-China is discussing with local planters the levying of an export duty on rubber produced in Indo-China.

It is proposed to levy the tax as from April 1, 1926, the basis being the value of rubber on the day of shipment, the rates being as follows:

No tax on the first piaster of the price per kilo; $0.03 on the second piaster; $0.05 on the third piaster; $0.07 on the fourth piaster; $0.09 on the fifth piaster.

Rubber Patents, Trade Marks and Designs

The United States

April 6, 1926*

1,579,306 Garment supporter. Abraham J. Goldsmith, New York, N. Y.

1,579,547 Pneumatic tire pressure gage. Harold J. LeVesconte, assignor by mesne assignments to Tiregage Valve Corporation, both of Charleston, West Virginia.

1,579,608 Rubber dam. Samuel S. Haudenshield, Carnegie, Pennsylvania.

1,579,674 Tire. Antonio Teresa, Habana, Cuba.

1,579,817 Pneumatic tire. Walter P. Keith, New Castle, Pennsylvania, assignor to Seiberling Rubber Co., Akron, Ohio.

1,579,946 Endless belt or band. Irwin F. Kepler, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,580,010 Signature stamp for multigraphing machines. Howard Taylor Buck, Cedar Knolls, New Jersey, assignor to T. S. Buck Manufacturing Co., New York, N. Y.

1,580,056 Tire stem pressure gage. Harold J. LeVesconte, assignor by mesne assignments to Tiregage Valve Corporation, both of Charleston, West Virginia.

1,580,070 Rubber padded gumming apparatus. Otto Müller, Breslau, Germany, assignor to Hans Hauser, Jagerndorf, Czechoslovakia.

1,580,075 Automobile running board with rubber mat. Enoch E. Paine, assignor to The Paine & Williams Co., both of Cleveland, Ohio.

April 13, 1926*

1,580,203 Pneumatic bumper. Everett Jasheway and Henry Duemler, Vails Mill, New York.

1,580,210 Inflatable pillow. James E. McCulloch, Washington, District of Columbia.

1,580,436 Garter. Franklin J. Klepper, Earling, Iowa.

1,580,439 Life preserving suit. Andrew Meilland, Buffalo, New York.

1,580,464 Combined sanitary shield and receptor. Frances Hyman Blumenfeld, Richmond, California.

1,580,475 Bowling shoe. Frank Farnan, Fort Wayne, Indiana.

1,580,697 Tire. Thomas J. Spicer, Baltimore, Maryland.

1,580,754 Window strip. Tony Mularcik, Laffin, Pennsylvania.

1,580,857 Protective covering for X-ray operators. Thomas G. Richards, Barberton, Ohio.

1,581,007 Air pressure testing device for pneumatic tires. Ernest H. McFarland, assignor of one-half to J. A. Hodges, both of Louisburg, North Carolina.

1,581,067 Stocking. Percy P. Kleindienst, Brooklyn, assignor of one-half to Raymond S. Norris, New York, both in New York.

1,581,087 Tire securing device. Max Cyrus Overman, assignor to O. & W. Co., both of New York, N. Y.

April 20, 1926*

1,581,320 Electric air pressure indicator for pneumatic tires. Homer J. Pumphrey, Jr., Clayton, Ohio.

1,581,345 Paving block. Leon J. D. Healy, Milwaukee, Wisconsin, assignor to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,581,381 All metal inner tubes. Newman E. Brown, Erie, Pennsylvania.

1,581,389 Cushion rubber heel. Louis Colella, Detroit, Michigan.

1,581,424 Washable garter. Edward Charles Blomeyer, Kansas City, Mo.

1,581,503 Garter. Alfred May Ziegler, Newton, Massachusetts.

1,581,561 Rope socket employing rubber cushioning element. Alton F. Yeaton and Lewis W. Breyfogle, assignors to The Star Drilling Machine Co., all of Akron, Ohio.

1,581,568 Storage battery cell cover. Bruce Ford, Philadelphia, Pennsylvania.

1,581,590 Pneumatic tire. Arlington Moore, New York, N. Y., assignor to Moore Inventions Corporation, Worcester, Massachusetts.

1,581,743 Pneumatic tire. John Kearns and Ezra Gray Webber, assignors of one-half to Lee Tire & Rubber Co., all of Conshohocken, Pennsylvania.

1,581,783 Shoe. Hugh Bullock, Andover, assignor to Converse Rubber Shoe Co., Malden, both in Massachusetts.

1,581,962 Corset. Joseph J. Kispert, Branford, assignor to I. Newman & Sons, New Haven, both in Connecticut.

1,582,021 Molded rubber hand knob. Harvey D. Geyer, assignor to The Inland Manufacturing Co., both of Dayton, Ohio.

April 27, 1926*

1,582,219 Container closure. Ernest Hopkinson, New York, N. Y., and Bradley Dewey, Cambridge, Massachusetts, assignors of one-half to Dewey & Almy Chemical Co., Cambridge, Massachusetts, and one-half to General Rubber Co., New York, N. Y.

1,582,229 Heel. David D. Smith, Hollywood, California.

1,582,232 Shoe guard. Joseph I. Vinzant, assignor of one-fourth to Raymond Muse and one-fourth to Bert Malin, all of Inglewood, California.

1,582,507 Horn. Ferdinand F. Brucker, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,582,521 Tip fastening device. Stanislaw Kielar, Milwaukee, Wisconsin.

1,582,575 Tire. Juan Graciano Casteran, Buenos Aires, Argentina.

1,582,624 Pneumatic tire valves. Preston Bacon, Bronxville, assignor to A. Schrader's Son, Inc., Brooklyn, both in New York.

1,582,637 Vehicle cushion connection. Robert Fulton Cowell, Bogota, New Jersey, and Fred L. Lipcot, New York, assignors to The Rubber Shock Insulator Co., Inc., New York, N. Y.

1,582,667 Shoe fastener. Elmer L. Briggs, Plymouth, Massachusetts.

1,582,689 Weather strip. George C. Reeves, assignor to Dryden Rubber Co., both of Chicago, Illinois.

1,582,876 Draft preventing device. Edward E. Richardson, Maumee, assignor of fifty-one per cent to F. O. Richey, Lakewood, both in Ohio.

May 4, 1926*

1,582,972 Air tube for tires. Jonathan E. Courtney, Fayetteville, North Carolina.

1,582,983 Playing ball. Marcia C. Hamblet, Akron, Ohio.

1,583,074 Elastic band for athletic garment. David Levinson, assignor to Wilson-Western Sporting Goods Co., both of Chicago, Illinois.

1,583,087 Surface electrode for electrical therapeutic apparatus. Frederick H. Morse, Boston, Massachusetts.

1,583,096 Shoe. George L. Pierce and Otto L. Hassel, Brooklyn, assignors to A. G. Spalding & Brothers, New York, both in New York.

1,583,263 Typewriter platen. Burnham C. Stickney, Elizabeth, New Jersey, assignor to Underwood Typewriter Co., New York, N. Y.

1,583,278 Elastic web. Charles Clutsom, Coalville, England.

1,583,388 Pneumatic tire. John T. Clark, Provo, Utah.

1,583,487 Syringe. Fitz Edward Parkler, Chicago Heights, Illinois.

1,583,538 Valve cap for pneumatic tires. Emory S. Ensign, Rockford, Illinois.

1,583,551 Woven elastic ribbon. John Heck, assignor to A. Stein & Co., both of Chicago, Illinois.

1,583,552 Garter. Albert C. Herzberg, Memphis, Tennessee.

1,583,570 Rubber heel wedge. Clarence Y. Booth, assignor to Atlantic Manufacturing Co., both of Wilmington, Delaware.

1,583,721 Golf ball. Philip Schuyler Kane, Kane, Pennsylvania.

1,583,742 Baby feeding device. Emmeline H. Pearson, Washington, District of Columbia.

Reissue

16,341 Repair shield. James H. and George A. Burrow, assignors to Burrow Manufacturing Co., all of Spokane, Washington. Filed January 16, 1926. Serial No. 81,859. Original No. 1,528,044, dated March 3, 1925. Serial No. 685,795, filed January 12, 1924.

The Dominion of Canada

April 6, 1926

259,526 Boot sole and heel. John Mason, London, E. C. 3, England.

259,539 Cushion tire. Thomas C. Mussen, Toronto, Ontario.

April 13, 1926

259,692 Mat. Charles T. Lyons, Median, and Harry W. Bell, Seattle, both in Washington, U. S. A.

259,737 Pneumatic tire safety indicator. John E. Kennedy, Los Angeles, California, U. S. A.

259,779 Life saving belt. Ralph Louis Schroeder, Owensboro, Kentucky, U. S. A.

259,790 Hollow ball. Charles L. Stubbs, Newark, Ohio, U. S. A.

April 20, 1926

259,897 Foot mat. Robert M. Dick, Vancouver, British Columbia.

259,913 Abdominal support. Frieda Hettinger, Meyronne, Saskatchewan.

260,000 Pneumatic tire. The Dunlop Rubber Co., Ltd., Regent's Park, County of London, assignee of Colin Macbeth, Birmingham, County of Warwick, both in England.

April 27, 1926

260,093 Pneumatic tire. Cyril Alfred Harvey Brown, Thames Ditton, England.

260,112 Pneumatic tire. Arthur G. Fitz Gerald, Brookline, Massachusetts, U. S. A.

260,133 Solid rubber tire for tractor. Walter Llewellyn Hill, Manchester, County of Lancaster, England.

* Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

Chemical patents will be found on page 143. Machinery and Process Patents on pages 146-147

260,243 Tire. The Dunlop Rubber Co., Ltd., Regent's Park, County of London, assignee of Frank Fellowes, Birmingham, County of Warwick, both in England.

260,247 Cushion tire. The Goodyear Tire & Rubber Co., assignee of Parry Keller, both of Akron, Ohio, U. S. A.

260,279 Pneumatic tire pressure gage. A. Schrader's Son, Inc., New York, N. Y., assignee of Gustav Adolph Duerler, Jr., San Antonio, Texas, both in U. S. A.

May 4, 1926

260,349 Baseball. Philip B. Bekeart, San Francisco, California, U. S. A.

260,367 Tie support. Herbert R. S. French, Boissevain, Manitoba.

260,475 Windshield. The Fisher Body Corporation, Detroit, assignee of Emory Glenn Simpson, Highland Park, both in Michigan, U. S. A.

The United Kingdom

March 31, 1926

246,764 Hot water bottle socket and stopper. F. W. B. Miles, 90, Sherrard road, Forest Gate, Essex.

246,815* Protective covering for cables. Apt. R. 2, Klingerstrasse, Treptow, Berlin, Germany.

246,822* Cable core. Land-und Seekabelwerke Akt.-Ges., Nippes, Cologne, Germany.

246,857* Vehicle mud guards. A. G. V. Jörgensen, 50 Aaboulevard, Copenhagen.

246,869* Galvanic batteries employing rubber. E. Peel, Hebburn street, Pelaw Main, New South Wales.

246,927 Floor covering. A. E. Salmon, 19, Slade Lane, Longsight, Manchester.

246,973 Hot water bottle. F. C. Jones, 29A, Charing Cross road, London.

247,009 Paving blocks. Universal Rubber Paviors (Manchester, 1923), Ltd., and L. Gaisman, Chatham Street Rubber Works, Canning street, Audenshaw, near Manchester.

247,034 Insole. A. J. Marks, 32, Alfred place, Tottenham Court road, London.

247,040 Electric cables. A. W. Williams, 6, Cavendish Vale, Sherwood, Nottingham.

247,085 Heel pads. W. E. Speare, 51, Watergate street, Chester.

247,094 Tire armor. W. Kaiser and L. Madlener, 29 Stiftstrasse, Frankfurt-on-Main, Germany.

247,098 Device for attaching anti-slipping pads. J. C. Cochrane, Rose Cottage, Hamilton road, Broomhouse, and W. R. Gilmour, 61, Greenlees road, Cambuslang, both in Lanarkshire.

April 8, 1926

247,143* Cable cores. Standard Underground Cable Co., 17th street, Pittsburgh, Pennsylvania, assignee of H. W. Fisher, 119 Water street, Perth Amboy, New Jersey, both in U. S. A.

247,293 Cushion tire. E. B. Killen, 27, Queen Victoria street, London.

247,397 Deckle straps for paper making. J. A. Harrison, Britain Works, London road, Manchester.

April 14, 1926

247,401 Electric cable. Callender's Cable & Construction Co., Ltd., and S. J. Bryce, Anchor Works, Leigh, Lancashire.

247,416 Hair waving appliance. W. Fletcher and J. W. Simpson, 10, Tachbrook street, London.

247,422 Vehicle mud guards. J. C. Drummond, 84, Langlands road, Govan, Glasgow.

247,428 Hat stretcher. H. G. Rossiter, 29, Bittern street, Borough, High street, London.

247,498 Disk wheel. H. N. Atwood, Samarkand Farm, East Hill road, Monson, Massachusetts, U. S. A.

247,533* Life savers. S. Ring Akt.-Ges., 63 Bahnhofstrasse, Zurich, Switzerland, assignee of W. Strelow, 47, Joachim-Friederichstrasse, Halensee, Berlin, Germany.

247,616 Reversible paving blocks. J. S. and E. O. Cowper, 24, Queensberry place, Cromwell road, London.

247,630 Airman's suit. H. H. Evans, 6 Rue Fatters, Paris, France.

247,740 Bottle stoppers. V. Reimann and K. Becker, Nürnbergerstrasse, Dresden, Germany.

247,743 Weather strips. E. C. G. England and G. England (Motor Bodies), Ltd., Felsham road, Putney, London.

April 21, 1926

247,811 Mops. E. Jakob, Ede Metz & Eychstrasse, Feuerbach, Germany.

247,842 Hearing appliance. A. Von Suchorzynski, 26 Matthiasstrasse, Breslau, Silesia, Germany.

247,859 Cushion tire. W. R. Gillam, Kent road, Tallmadge, Ohio, U. S. A.

247,872 Goggles. H. R. Hart, 141, North Mountain avenue, Montclair, New Jersey, U. S. A.

247,879 Sock suspenders. A. Laurain, 86 Rue Notre Dame de Nazareth, Paris, France.

247,886 Laminar springs. T. S. Hamilton, 530 West 27th street, Los Angeles, California, U. S. A.

247,889 Cushion tire. W. C. Fairweather, 65, Chancery Lane, London. (Gummiwerke Fulda Akt.-Ges., 59 Künzlerweg, Fulda, Germany).

247,891 Bottle nipple. M. G. Clarke, 1214 Calhoun street, New Orleans, Louisiana, U. S. A.

247,915* Braces. C. Darnon, 9 Rue William Neyrand, St. Chamond, Loire, France.

247,916* Hand wheels. L. L. Trabet, 134 Rue de Vincennes, Montreuil, Seine, France.

248,021 Rubber lined containers. H. P. Stevens, 15, Borough High street, London.

248,029 Cloth expander. E. Farrell, Clowe's Street Works, Chapel street, Salford, Manchester.

248,047 Rubber covered roads. Universal Rubber Paviors (Manchester 1923), Ltd., and L. Gaisman, Chatham Street Rubber Works, Canning street, Audenshaw, near Manchester.

248,052 Vacuum tubes. A. C. Read, 10, Baron street, Pentonville road, London.

248,096 Pipes. W. J. Buttle, 36, King street, and R. S. Rodger, 50, Fountain street, both in Manchester.

248,109 Road foundation. W. P. Digby, 91, Victoria street, Westminster.

248,169 Towel rails, etc. T. Browett, 49, Tisbury road, Hove, Brighton, Sussex.

April 28, 1926

248,178 Insulated conductors. H. D. Fitzpatrick, 94, Hope street, Glasgow (Naamlooze Vennootschap Hollandsche Draad-en Kabelfabriek, Amsterdam).

248,280 Boots. H. P. Shepherd & Co. (Slippers), Ltd., Springfield Works, Bury, Lancashire.

248,294 Flexible shafts. E. A. Ward, 186, Antrobus road, Handsworth, Birmingham.

248,351 Dress shields. A. H. Papavassiliou (née Eugenidid), 84 Theresien street, Munich, Germany.

248,390* Lateral splash guards. E. Spelta, 3 Via Principe Tommaso, Turin, Italy.

248,419 Net floats and buoys. J. Young, 10, Edgecombe street, Stonehouse, Plymouth.

248,632 Fastenings with rubber annulus. J. L. Sands, Ouseley Cottage, College avenue, Maidenhead, Berkshire.

248,636 Spray rose. A. F. Morrison, Hygeia Works, Cornbrook, Manchester.

248,653 Pneumatic tire relief valve. A. E. White, 15, Winifred avenue, Coventry.

*Not yet accepted.

New Zealand

February 25, 1926

52,849 Washing board. Jessie Young Woods and William Brew, both of Templeton, Canterbury.

55,406 Pneumatic tire inner tube and filler. Frank Dyson Smith, 14 Hopper street, Wellington.

March 11, 1926

55,625 Brush. Robert Paley Kitcat and Charles Perkins Robertson, both of Mount Pleasant Works, Muston road, Upper Clapton, London, England.

55,781 Tire. Edward Brice Killen, 27 Queen Victoria street, London, E. C. 4, England.

March 25, 1926

53,448 Pneumatic tire tube. George Broderick, Shaw street, Temuka.

54,721 Pneumatic tire valve. Henry Cook, Pleasant Point, Milford, via Temuka.

55,661 Tire inflating mechanism. William Gordon Cumming, 712 Drummond Building, Montreal, Canada.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

April 6, 1926, Act of February 20, 1905

211,087 COLLEGIATE—garters. The A. J. Donohue Corporation, Milford, Connecticut.

211,170 The word: CREDIT, the letters: C and T being lengthened to form an enclosure, beneath the words: TRADE MARK—tires, tubes and casings. Albert Goldstein, doing business as The Credit Tire Co., Oakland, California.

211,171 CREDITIRE—tires, tubes and casings. Albert Goldstein, doing business as The Credit Tire Co., Oakland, California.

211,218 Oval frame containing a representation of the sun and the words: "BELKO," "BRAND" and "TRADE MARK"—narrow elastic. The Isbell-Kent-Oakes Dry Goods Co., Denver, Colorado.

211,228 SERT-ON—shoe soles. The Regal Rubber Co., now by change of name The Serton Rubber Co., Dayton, Ohio.

211,247 SORBO—gloves and pads. Sorbo Rubber-Sponge Products, Ltd., Woking, England.

211,250 The words: "WIZARD" and "LIGHTFOOT," and underneath the representation of a foot on each side of which is a wing—corn pads, heel liners and bunion shields. Wizard Lightfoot Appliance Co., St. Louis, Missouri.

211,258 Representation of an egg in which appears a stork carrying a baby, around the egg is a pennant containing the word: LAPAREUR—infants' nipples and pacifiers. New York Merchandise Co., New York, N. Y.

211,275 RE-FORM—boots, shoes and slippers. Scholl Manufacturing Co., Inc., now by change of name The Scholl Manufacturing Co., Inc., Chicago, Illinois.

211,283 JIMMY BUTTON—patches for tires and tubes. Robert F. Reeve, Newark, New Jersey.

April 6, 1926, Act of March 19, 1920

211,308 Square in which are the words: PARA CURTAIN—rubberized shower curtain. Para Rubber Co., Newark, New Jersey.

211,321 HY GRADE—shoes. The Dan Cohen Co., Vincennes, Indiana, and Covington, Kentucky.

211,326 HYCLASS—narrow elastic webs. George S. Colton Elastic Web Co., Easthampton, Massachusetts.

211,330 Oval containing the words: FASHION ARCH—boots and shoes. Burrows Shoe Co., Rochester, New York.

211,364 PORTLAND—fan belts. Oregon Fan Belt Manufacturing Co., Portland, Oregon.

April 13, 1926, Act of February 20, 1905

211,371 Representation of a walnut and above the words: "OLD WALNUT TUBE PATCH"—inner tube patching. John F. McLeod, doing business as Old Walnut Tube Patch Co., Hendersonville, North Carolina.

211,406 SHURWYN—tires, tubes and patch material. Shurwyn Tire & Rubber Co., St. Louis, Missouri.

211,422 STURDIWELTS—boots and shoes of rubber, leather and combinations. Muskin Shoe Co., Baltimore, Maryland.

211,443 PATCHLESEAL, beneath a representation of a small boy astride a tire holding in one hand a patch, the tire rolling over tacks, broken glass, etc.—chemical compound for making automobile tires puncture proof. Patchleseal Manufacturing Co., New York, N. Y.

211,548 Fanciful circle containing a representation of a foot and the words: "SUPER FOOT FORM CUSHION SHOE" above a smaller representation of the fanciful circle—cushion shoes. George J. Winter, doing business as Super-Foot-Form Cushion Shoe Co., Buffalo, New York.

211,614 TELEMAC—waterproof and rainproof coats, capes and overalls. Telemac, Ltd., London, England.

April 20, 1926, Act of February 20, 1905

211,725 SHOCK PAD—pneumatic tires. The National Tire & Rubber Co., East Palestine, Ohio.

211,732 SUCCESS—inner tube patches. William Anderson, Menominee, Michigan.

211,749 SILVER SEAL—tire cement. Chester A. Marsh, Bay City, Michigan.

211,792 The words: "TUSCO" and "FOR FLYING FEET"—leather, rubber and fabric shoes. Tuttle-Scott Stores, Inc., Toledo, Ohio.

211,793 The words: "TUSCO" and "MILES OF WEAR"—leather, rubber and fabric shoes. Tuttle-Scott Stores, Inc., Toledo, Ohio.

211,800 Square formed by the crossing of four golf clubs, in every other corner a tennis racket, and in the center the words: "CHILD'S VARSITY SHOE"—shoes of leather, canvas, rubber, cloth or combinations thereof. H. Childs & Co., Inc., Pittsburgh, Pennsylvania.

211,822 PANSY—bandeaux, girdles and garter belts. The H. & W. Co., Newark, New Jersey.

211,916 Representation of a man swinging a golf club—shoes of leather and leather and rubber. The Sportocasin Co., Yarmouth, Maine.

211,925 Fanciful design containing the words: "THE BATES SHOE"—shoes of leather, rubber, etc. A. J. Bates Co., Webster, Massachusetts.

April 20, 1926, Act of March 19, 1920

211,970 SURF CAP—bathing caps. Surf Cap Co., Dallas, Texas.

211,974 TIRE SAVERS—interliners for tires. Emil E. Landin, Chicago, Illinois.

April 27, 1926, Act of February 20, 1905

212,041 ARMORITE—coverings for surfaces of receptacles conduits, machinery parts, etc. The B. F. Goodrich Co., New York, N. Y.

212,043 BULL DOG—rubber mats and matting. Boston Woven Hose & Rubber Co., Cambridge, Massachusetts.

212,047 ELINSCOM—liquid insulating compound. The Federal Rubber Co. of Illinois, Chicago, Illinois.

212,052 "GLUVTEX"—rubber gloves, etc. Gluvsilk Undergarment Co., Inc., New York, N. Y.

212,124 The word: PARACREPE, the letters becoming larger toward the center—soles and bottoms for shoes. Endicott Johnson Corporation, Endicott, New York.

212,149 IMPERIAL—golf balls. Davega, Inc., New York, N. Y.

212,172 MING TOY—garters, etc. Wurdeman Textile Mills, Inc., Fort Plain, New York.

212,215 "KID-OURS"—babies' rubber pants or bloomers. Parker, Stearns & Co., Brooklyn, New York.

April 27, 1926, Act of March 19, 1920

212,344 KAUFMANN'S THE BIG STORE—rubber toys and novelties, etc. Kaufmann Department Stores, Inc., Pittsburgh, Pennsylvania.

May 4, 1926, Act of February 20, 1905

212,371 CROSS COUNTRY—tires and inner tubes. National Cloak & Suit Co., New York, N. Y.

212,389 A red and yellow oblong containing the words: "ELEPHANT TIRE PATCH"—patches, plasters and repair outfits. Out West Manufacturing Co., Denver, Colorado.

212,393 The letters: K.C. beneath which is a representation of a heart through the center of which runs a train—tire patches. K. C. Chemical Co., Kansas City, Missouri.

212,410 A circle across which is the representation of a garter and the words: "WIDEWEB BOSTON GARTER," "VELVET GRIP" and "QUALITY FIRST"—men's garters. George Frost Co., Boston, Massachusetts.

212,451 GIRL SCOUTS, in the center a design containing the letters: G S —raincoats, rubber shoes, etc. Girl Scouts, New York, N. Y.

212,478 P. N. PERFECTION—rubber brassiéres, bandeaux, etc. J. Newman & Sons, Inc., New York, N. Y.

212,489 GOLD SEAL—garters, rubber aprons, etc. Isidor Goldberg, doing business as National Garter Co., New York, N. Y.

212,493 A panel at the top of which is the representation of a castle and the words: "HELSINGBORG TRE TORN," and beneath the words: "HELSINGBORGS GUMMIFABRIKS AKTIEBOLAG" and "HELSINGBORGS BASTA FABRIKAT 1891"—rubber shoes, pads, etc. Helsingborgs Gummifabriks Aktiebolag, Helsingborg, Sweden.

212,495 Oblong containing the word: SKOOKUM, each letter superimposed on a square—piston packing. Pioneer Rubber Mills, San Francisco, California.

212,511 The word: CAMEL, and underneath the representation of a camel—pneumatic tire inner tube patches. H. B. Egan & Co., Muskogee, Oklahoma.

212,520 WELTAN—rubber, leather or combination shoes. William Rosenstein & Co., doing business as Weltan Shoe Co., Baltimore, Maryland.

212,541 STEP IN STYLE, under this a diamond enclosing the word: Tusco —leather, rubber and fabric shoes. Tuttle-Scott Stores, Inc., Toledo, Ohio.

212,545 SANITARY—rubber hose. The Goodyear Tire & Rubber Co., Akron, Ohio.

212,547 VOGUE—tires and tubes. Harry C. Hower, Chicago, Illinois.

May 4, 1926, Act of March 19, 1920

212,560 PEERLESS—rubber stamps. Harry Heine, New York, N. Y.

212,569 KARBELT—transmission belts. Victor Balata & Textile Belting Co., New York, N. Y., and Easton, Pennsylvania.

212,572 LOAIR—tires and inner tubes. The Star Rubber Co., Akron, Ohio.

The Dominion of Canada

Registered

April 13, 1926

39,525 Word: "DURAGLAZE"—coverings for floors, tables, etc. Gutta Percha & Rubber, Ltd., Toronto, Ontario.

April 27, 1926

39,584 Word: "RUNBO"—matting. The Paine & Williams Co., Cleveland, Ohio, U. S. A.

The United Kingdom

March 31, 1926

457,259 Representation of a triangle beneath which are the Russian characters for the word: TRIANGLE—rubber goods. Société Francaise Treugolnik, 3 Rue Chauveau Lagarde, Paris, France (Cruikshank & Fairweather, 65, Chancery Lane, London, W. C. 2).

April 7, 1926

467,422 HELENITE—electric cables. St. Helen's Cable & Rubber Co., Ltd., Bath road, Slough.

April 14, 1926

465,634 RUGATEX—boots and shoes. Gutta Percha & Rubber, Ltd., 47, Yonge street, Toronto, Canada.

466,188 DUNLOPDUM—goods included in Class 6. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,189 DUNLOPDUM—all goods included in Class 13. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,190 DUNLOPDUM—all goods included in Class 40. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,191 DUNLOPDUM—all goods included in Class 49. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,192 DUNLOPDUM—tire repair outfit. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,193 DUNLOPILLO—all goods included in Class 6. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,194 DUNLOPILLO—all goods included in Class 13. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,195 DUNLOPILLO—all goods included in Class 40. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,196 DUNLOPILLO—all goods included in Class 49. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

466,197 DUNLOPILLO—tire repair outfit. The Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

April 21, 1926

451,675 Representation of a red circle—boots and shoes. Mishawaka Rubber & Woolen Manufacturing Co., Hill and Water streets, Mishawaka, Indiana, U. S. A.

457,411 Fanciful triangle in the center of which are the letters: B G C —gutta percha adhesives. British Glues & Chemicals, Ltd., 15, Kingsway, London.

465,658 Representation of an electro magnet wound with wire—rubber covered wire. The General Electric Co., Ltd., Magnet House, Kingsway, London, W. C. 2.

April 28, 1926

466,286 SWEETNER—golf balls. J. Batty & Co., Ltd., 2, Rook street, Manchester.

467,234 MOHAWK—tires and tubes. The Mohawk Rubber Co., 1235 Second avenue, Akron, Ohio, U. S. A. (White, Langner, Stevens & Parry, Jessel Chambers, 88, Chancery Lane, London, W. C. 2).

467,932 Square containing the representation of a frog carrying an umbrella—waterproof garments and raincoats. Alexander Young (London) Ltd., 60, Fenchurch street, London, E. C. 3.

468,210 FRU-FRU—rainproof and rubber-proofed clothing. Cohen & Wilks, Ltd., Aquatite Mills, Derby street, Cheetham, Manchester.

New Zealand

February 25, 1926

23,117 GLIDE—golf balls, etc. The Goodyear Tire & Rubber Co., 1144 East Market street, Akron, Ohio, U. S. A.

Designs

The United States

69,881 Tire tread. Term 14 years. Francis Raymond Fisher, assignor to Racine Rubber Co., both of Racine, Wisconsin.

69,883 Bathing garter. Term 7 years. Catherine M. Hannon, Staten Island, New York.

69,914 Resilient tire. Term 14 years. Isidore J. Remark, assignor to The General Tire & Rubber Co., both of Akron, Ohio.

69,934 Tire tread. Term 7 years. Albert E. Caldwell, assignor to Continental Rubber Works, both of Erie, Pennsylvania.

69,986 Tire. Term 3½ years. Julien F. Cullen, assignor to Columbia Tire Corporation, both of Portland, Oregon.

69,989 Tire. Term 14 years. George F. Englert, Pittsburgh, Pennsylvania.

Germany

940,662 (November 9, 1925). Rubber nipple. Oskar Skaller A.-G. and Wilhelm Sponholz, Johannisstrasse 20-21, Berlin.

940,815 (January 30, 1926). Rubber floor covering. Continental-Caoutchouc-und Cutta-Percha-Compagnie, Hannover.

940,834 (February 9, 1926). Suspender with adjustable and exchangeable rubber loop. Hermann Einsel, Wortmannstrasse 39, Elberfeld.

940,872 (January 13, 1926). Sprayer syringe. Karl Dietrich, Mittelstrasse 7, Leipzig.

940,965 (February 1, 1926). Electrically heated irrigator. Dr. Carl Schaarwächter, Langestrasse 82, Hagen i. W.

940,975 (February 9, 1926). Cellular tube for automobiles, etc. Adalbert Langer, Am grünen Anger 15, Berlin-Johannisthal.

940,985 (February 13, 1926). Nipple. Julius Friedlaender, Gummiwarenfabrik, G. m. b. H., Berlin.

941,019 (February 2, 1926). Irrigator with electric heating device. Fritz Ebel, Unter Krahnenbäumen 6, Köln.

941,095 (January 14, 1926). Rubber sponge. Gummi-Werke Elbe, A.-G., Klein-Wittenberg, a. d. E.

941,131 (February 13, 1926). Rubber floating body for advertising purposes. Harburger Gummiwaren-Fabrick Phoenix A.-G., Harburg a. d. E.

941,201 (February 17, 1926). Band of rubber film or similar material for making a quick bandage for wounds. Heinz Wittlich and Carl Buchmüller, Mainluststrasse 9, Frankfurt a. M.

941,313 (January 28, 1926). Rubber heel. Emil Pötzsch & Willy Franz, Pirna a. d. E.

941,622 (February 1, 1926). Rubber doll with removable rubber boots. Hannoversche Gummiwerke Excelsior, Hannover-Limmer.

942,105 (December 31, 1925). Rubber mat with sponge rubber inset for beer glasses. Friedrich Philipkowski, Ulmenallee 2, Flensburg-Klues.

942,378 (February 26, 1926). Surgical rubber glove. Agnes Vorbeck, Hamburgerstrasse 195, Altona a. d. E.

942,379 (February 27, 1926). Fermentation funnel of rubber. Heinrich Jäger, Islandstrasse 16, Berlin.

943,122 (August 22, 1925). Cord tube. Continental-Caoutchouc-und Gutta-Percha-Compagnie, Hannover.

943,138 (February 1, 1926). Cuff of rubber with covered fabric insert for use in measuring blood pressure. Firma C. Stiefenhofer, Munich.

943,327 (February 24, 1926). Swimming cushion of rubberized fabric. Felix Niebling, Grenzhausen, Nassau.

943,365 (March 1, 1926). Rubber brush. Rubber Brushes, Ltd., and Edward Lord, London. Represented by H. Meyn, Nürnberg.

943,424 (December 12, 1925). Two-part rubber heel tread patch. Oswald Schöttel, Falkenstein i. V.

943,464 (February 24, 1926). Rubber band to protect eyes and face of ladies when washing the hair. Fritz Frey, Mannheim, O. 3. 10.

944,183 (March 9, 1926). Inner tube with cellular compartments for motorcycles and bicycles. Carl Damm, Reuterstrasse 15, Cassel-R.

944,213 (August 12, 1925). Rubber block belt. Rudolf Roderwald, Menzelstrasse 9, Berlin-Grunewald.

944,355 (February 22, 1926). Cover for baby carriage of rubberized fabric. Thea Blayer, née Wiesenbauer, am Stärzenbach 3, Regensburg.

944,397 (March 9, 1926). Fabric shoe with rubber heel. Friedrich Theilmann, G. m. b. H., Frankfurt-am-Main, Niederrad.

944,625 (March 12, 1926). Soft rubber cover for wheel rims. Continental-Caoutchouc und Gutta-Percha-Compagnie, Hannover.

944,945 (March 17, 1926). Rubber tapping knife. Wolfertz & Evertz, Solingen.

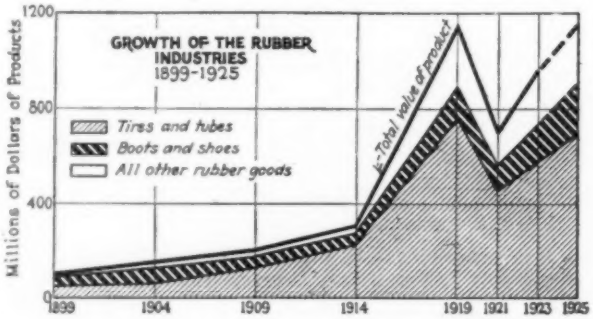
Labels

The United States

30,257 GALACITE. Puncture Seal. Charles F. Johnson, doing business as C. F. Johnson & Co., Chicago, Illinois. Published January 26, 1926.

Growth of the Rubber Industry

The rapid advance in the production of tires, tubes, footwear, and rubber goods, as shown by the chart herewith, illustrates the interdependence of the tire and automobile industries. In the last quarter of the past century rubber footwear accounted for more than half the $100,000,000 volume reached by the rubber industry at the end of the century, with mechanical rubber goods second. The production of tires became a factor during 1890-1899, and in that decade their value reached an amount equal to that of rubber footwear, approximately $50,000,000. From this time to the present the relative productions of tires and tubes, boots and shoes and all other rubber goods are indicated on the chart. While the output of rubber footwear averaged fairly constant for 20 years, at about $50,000,000 annually, after 1899 the output of



Comparative Production of Rubber Goods, 1899 to 1925

tires and tubes shows a rapid increase in the 10-year period ended with 1914, when automobiles were becoming established in popular favor and tires and tubes reached a value of $200,000,000. The growth of the tire and tube industry during the war years, 1914 to 1919, advanced with astounding rapidity to a peak value of $850,000,000. Although the recession caused by the two years of post-war deflation caused a drop of nearly 50 per cent in valuation, the recovery between 1921-1925 is rapidly restoring tires and tubes to the peak of 1919 and may surpass it within the next five-year period.

While all divisions of the rubber industry met with a sharp setback from 1919 to 1921 they maintained their relative rank. The gain in value of the rubber footwear division and of all other products was especially marked from 1921 to 1925, at the end of which period these divisions were practically of equal rank at about $200,000,000 each and totaling together about half of the tire and tube valuation, or a third of that of the industry as a whole, which is close to $1,000,000,000.

The Market for Rubber Scrap

New York

The demand for all grades of rubber scrap on the part of reclaimers and rubber goods manufacturers continued in fair proportions the past month, although business has been somewhat dull in the mechanical division. Stocks of rubber scrap in dealers' hands are somewhat reduced and collections thus far this spring have been delayed by stormy and cold weather conditions. The result has been to advance somewhat the more popular grades of scrap.

BOOTS AND SHOES. The demand is rather light. Prices are firm and have advanced slightly on several of the grades due to shortage in spring collections.

INNER TUBES. Mixed and compounded grades are down fractionally with consuming demand moderate.

MIXED TIRES. Mixed tubes and several other grades have dropped $2 a ton, mixed auto peelings $4.50 and solid truck tires $5 a ton. Western demand is larger than eastern.

MECHANICALS. All grades, except regular hose, are firm or advanced over prices of a month ago. Regular hose has dropped $2.00 a ton.

Quotations for Carload Lots

May 25, 1926

Boots and Shoes				
Boots and shoes, black	lb.	$0.02	@	$0.02⅛
Red and white	lb.	.01¼	@	.01⅜
Trimmed arctics, black	lb.	.01⅛	@	.01¼
Untrimmed arctics	lb.	.01	@	.01¼
Tennis shoes and soles	lb.	.01	@	.01¼
Hard Rubber				
No. 1 hard rubber	lb.	.14	@	
Battery jars, black compound	lb.	.02	@	.02⅛
Inner Tubes				
No. 1, floating	lb.	.09¼	@	.10
No. 2, compounded	lb.	.07½	@	.07¾
Red	lb.	.06½	@	
Mixed tubes	lb.	.06	@	.06¼
Mechanicals				
Mixed black scrap	lb.	.01⅛	@	.01¼
Heels	lb.	.01	@	.01⅛
Hose, air-brake	ton	26.00	@	28.00
regular	ton	20.00	@	
No. 1 red	lb.	.02½	@	.02¾
No. 2 red	lb.	.02	@	
Red packing	lb.	.01¼	@	.01⅜
White, druggists' sundries	lb.	.04	@	.05
Mechanical	lb.	.02	@	.03
Tires				
Pneumatic Standard—				
Mixed auto tires with beads	ton	24.00	@	25.00
Beadless	ton	34.00	@	35.00
White auto tires with beads	ton	44.00	@	45.00
Beadless	ton	60.00	@	62.00
Mixed auto peelings	ton	42.50	@	43.50
Solid—				
Mixed motor truck, clean	ton	40.00	@	

MANDREL LUBRICANT FOR MOLDED ARTICLES

The use of soap solution or water-glass as a lubricant for the mandrels or cores upon which battery jars are vulcanized has the objectionable feature of leaving on the finished article a water soluble film. This disadvantage displays itself only after the jars are in service. When the acid solution is placed in the sealed jar the water works up along the water soluble film between the jar and the sealing compound which holds the cover, loosening the seal and causing slow leakage.

By a recent invention sugar cane wax is substituted as a mandrel lubricant. It not only prevents adhesion of the vulcanized battery box but the film left upon it is non-soluble in water and adheres firmly to the cover sealing compounds throughout the life of the jar. The lubricant is prepared by making a 5 per cent solution of the wax in benzol or gasoline and is applied by brush or as a spray.

British Malaya

Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that the amount of rubber exported from British Malaya in the month of April last totaled 23,727 tons. The amount of rubber imported was 10,565 tons, of which 8,269 tons were declared as wet rubber. The following are comparative statistics:

	1925		1926	
	Gross Exports Tons	Foreign Imports Tons	Gross Exports Tons	Foreign Imports Tons
January	19,183	10,132	30,452	10,237
February	21,622	10,071	30,440	8,306
March	26,836	13,399	35,012	14,800
April	22,414	11,750	23,727	10,565
Totals	90,055	45,352	119,631	43,908

Distribution

The following is a comparative return of distribution of shipments during the months of March and April, 1926:

	March, 1926 Tons	April, 1926 Tons
United Kingdom	7,849	4,911
United States of America	22,809	16,015
Continent of Europe	1,890	1,609
British possessions	622	402
Japan	1,837	771
Other foreign countries	5	19
Totals	35,012	23,727

Dealers' Stocks of Rubber

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that dealers' stocks of rubber on April 30, 1926, were in Singapore 13,830 tons and in Penang 2,498 tons.

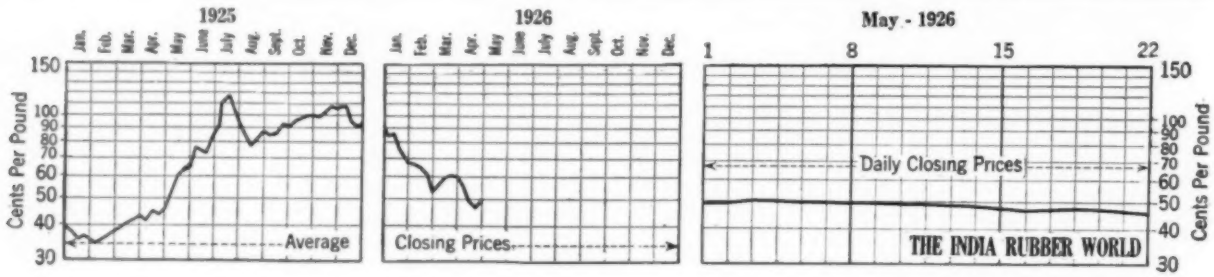
DREDGING SLEEVE

Underwater dredging operations are conducted on a line of scows anchored over the place to be excavated. The material removed is in the form of sand or gravel and is raised by means of suction pumps utilizing special suction hose known as dredging sleeves. These are often made of huge dimensions. One of a lot of this sort is here pictured as made by the Dunlop company. Its length is 16 feet and diameter 20 inches. Its construction required 450 pounds of rubber, 400 pounds of duck, 370 pounds tool steel for its internal spiral supporting frame, 370 pounds for both iron pipe nipples and 210 pounds of wrought iron bolt bands. The total weight of the sleeve reached 1,800 pounds.

Twenty-Inch Dredging Sleeve

In service the dredging sleeve illustrated is used to suck sand and gravel at a speed of 18 feet per second. This internal wear and tear is matched by equally severe bending effects from the outside.—Dunlop Tire & Rubber Goods Ltd., Toronto, Ontario, Canada.

SWEDEN'S PRODUCTION OF RUBBER GOODS ADVANCED IN VALUE from a total for 1913 of 10,714,000 crowns to 26,038,000 for 1923 and 30,806,000 crowns for 1924. The value of the Swedish crown is approximately $0.27.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

THE May rubber market has continued as dull as for the two or three preceding months. Between May 4 and 25 a decline of 5¼ cents took place. London stocks are increasing and consumption of rubber for tire and tube making is not taxing plantation production. The boom prices for rubber of last fall overshot the mark. The collapse of the market began with the "buyers strike" by manufacturers, instigated in part by propaganda against British governmental price control by restriction. Manufacturers have for the most part been out of the market the past three months, except for hand-to-mouth purchases and distressed lots. In fact there has been but little factory interest since the middle of last December. The crude rubber price situation would thus seem to be regulated more by supply and demand than by artificial restriction.

Manufacturers are buying for current needs and are waiting on futures for the market to reach bottom. There are two months yet to go before the restriction at 21 pence average will be effective and during that time London spot prices can average 20.4 pence and still maintain the quarterly average above 21 pence. Manufacturers all along have been selling their unneeded, nearby commitments and buying futures at lower levels. As an instance, one manufacturer, within a week, sold July rubber at 45 cents and bought October at 42 cents. The market is due for an active season when weather conditions start a general sales movement for tires and a rise in crude rubber relieves the present complicated situation from the general expectancy of a cut in tire prices.

During the last week of April the market was very steady in tone but fluctuating within a narrow range. Certain factors were evidently supporting the market and any decline here or in the foreign market was resisted effectively. The week closed with prices improved. Spot ribs were quoted 48½ cents buyers, 49 cents sellers, an advance of ¼ cent and 1 cent respectively for the week.

The first week in May was notably dull with almost no factory interest except a few filling-in orders. The market interest centered in the Rubber Exchange where futures were active and advancing. The week began with spot ribs at 49½ cents buyers, 50 cents sellers. These prices advanced ½-cent but fell closing the week at 49¼ cents buyers, 50 cents sellers.

The second week in May was practically a continuation of the first week as for dullness, differing only by its steady decline of price. The factors of weakness were lack of factory interest, their sales of surplus rubber, the delay of a general sales movement of tire stocks, and the increase of London stocks. Spot ribs declined during the week from 49 cents buyers, 49½ cents sellers to 47½ cents buyers, 47¾ cents sellers. The third week in May the outside market was quiet. Trading was steady but demand was limited. Some speculative trading developed, principally selling. Most of the market interest centered in the Rubber Exchange. There was practically no change during the week in the price of spot ribs. On May 17 they were 47 cents buyers, 47½ cents sellers, and on May 22, 47 cents buyers, 47¼ cents sellers. May 25 spot dropped to 45 cents, and futures, weakened correspondingly.

Parás were weak in sympathy with plantations. Surinam sheet balata is scarce on account of the dry season for collecting and is held at 80 cents. Venezuela block is in good supply and is selling at 63½ cents.

Importations of all grades in April were 32,678 tons, compared with 27,231 tons one year ago. Plantation arrivals for April were 30,766 tons, compared with 25,403 tons one year ago. Total importations of plantation rubber for four months ended April 30, 1926, were 139,147 tons, compared with 106,690 tons for the corresponding period of 1925. Total importations of all grades of rubber for the four months ended April 30, 1926, were 148,119 tons, compared with 114,561 tons for the corresponding period of 1925. Arrivals May 1 to 25 were 29,340 tons compared to 32,716 tons in April.

New York Quotations

Following are the New York spot and future rubber quotations, for one year ago, one month ago, and May 25, the current date:

Plantation Hevea	May 23, 1925	April 26, 1926	May 24, 1926
Rubber latex (Hevea)....*gal.*	$2.40 @	$2.00 @	‡1.80 @
CREPE			
First latex, spot	.64 @.64½	.48 @.48½	.47 @.47¼
May-June	.64½ @.65½	.47 @.48	.46½ @.47
July-Sept.	@	.46½ @.47	.43 @.43¼
Oct.-Dec.	.55 @	.45 @.45½	.42½ @.42¾
Jan.-Mar.	@	@	.42 @.42½
Off latex, spot	.63¾ @.64	.47½ @	.46 @.46½
Amber No. 2, spot	.63 @	.44½ @.45	.42 @.42½
May-June	.64½ @	.43¾ @.43½	.41½ @.42
July-Sept	@	.43 @.43½	.41 @
Oct.-Dec.	.52½ @	.42½ @.43	.40 @.41
Jan.-Mar.	@	@	.40 @.41
Amber No. 3, spot	.62¾ @	.44 @.45	.44 @.44½
Brown, thin, clean	.63 @	.44 @	.42 @.42½
Brown, specky	.62½ @	.43 @	.41½ @.42
Brown, roll	.61 @.62	.40 @	.38 @.39
Sole crêpe	.63 @	.80 @	.80 @
SHEET			
Ribbed, smoked, spot	.64½ @.65	.48 @.48½	.46½ @.47
May-June	.65 @.66	.47½ @.47¾	.46½ @
July-Sept.	@	.46½ @.46¾	.43½ @
Oct.-Dec.	.54½ @	.44½ @.45	.42½ @
Jan.-Mar.	@	@	.43 @
East Indian			
PONTIANAK			
Banjermassin	.07 @.08½	@	.17¼ @
Palembang	†.09 @	@	@
Pressed block	.14 @	@	.29½ @
Sarawak	.08½ @	@	@

New York Spot Closing Rubber Prices—Prices in Cents, Per Pound

PLANTATIONS	April, 1926					May, 1926																
Sheet	26	27	28	29	30	1	3	4	5	6	7	8	10	11	12	13	14	15	17	18	19	20	21	22
Rubber Smoked	47¾	47¾	47¾	48¼	48½	49	49¾	50¼	50	49½	49½	49¼	49¼	49	49	48½	48	47½	47	47½	47¾	47¼	47	46¼
Crêpe																								
First Latex	48	48	47¾	48½	48½	49¼	49¾	50¼	50	49½	49½	49¼	49¼	49	49	48¾	48	47½	47	47¼	47¾	47¼	46¾	46½
No. 2 blanket	44¾	45	45	45¼	45¾	45½	46¼	46½	46¼	46	45¾	45¾	45½	45½	45¼	45	44½	44¼	43¾	43¾	44¼	43½	43¼	42¾
No. 3 blanket	43¾	44	44	44½	44½	44½	45¼	45¼	45¼	45	44¾	44¾	44¾	44½	44¼	44	43½	43¼	42¾	42¾	43¼	42¾	42¼	41¾
No. 4 blanket	42¾	43	43	43¼	43¼	43½	44	44¼	44¼	44	43¾	43¾	43¾	43½	43¼	43	42½	42¼	41¾	41¾	42	41	40½	40½
Thin clean brown	43¾	44	44	44¾	44½	44½	45¼	45½	45¼	45	44¾	44¾	44¾	44½	44¼	44	43½	43¼	42¾	43	43½	42¾	42¾	42½
Rolled brown	39¼	39¼	39¼	40	40	41	41¼	42	41¼	40½	40½	40¾	40¼	39¾	39¾	39½	39¼	39	38½	38	38¾	37¾	37½	37¼
Off Latex	46½	46¾	46½	47¼	47¼	48½	48¾	49¼	49¼	48½	48¼	48	48¾	47¾	47¾	47½	47	46½	46¾	46½	47	46¾	45¾	45¼

South American	May 23, 1925		April 26, 1926		May 24, 1926	
PARAS						
Upriver, fine	.48	@	.42½	@.43	.38	@
Upriver, fine	*.64	@		@	*.55	@
Upriver, medium	.45	@	.37	@	.33	@
Upriver, coarse	.40	@	.30	@.30½	.24	@
Upriver, coarse	*.59	@		@	*.42	@
Islands, fine	.44	@	.36½	@.37	.32	@
Islands, fine		@		@	*.53	@
Cametá		@	.27	@	.25	@.26
Acre, Bolivian, fine	.50	@	.44	@	.39	@
Acre, Bolivian, fine	*.64	@		@	*.55	@
Beni Bolivian		@	.45	@	.39	@
Madeira	.50	@	.45½	@	.39	@
Peruvian, fine		@	.43	@	.38	@
Tapajos, fine		@	.41	@	.36	@
CAUCHO						
Upper Caucho ball	.40	@	.29½	@.30	.25	@
Upper Caucho ball	*.59	@		@	*.43	@
Lower Caucho ball	.38	@	.22½	@.23	.23	@
Maniçobas						
Ceará negro heads	.40	@	.40	@	†.40	@
Ceará scrap	.20	@	.19	@	†.20	@
Maniçobas 30% guaranty	.37	@	.35	@	†.37	@
Mangabeira, thin sheet	.40	@	.40	@	†.40	@
Centrals						
Central scrap	†.37	@	†.32	@	.21	@
Central wet sheet	†.30	@	†.24	@	.16	@
Corinto scrap	.37	@.38	†.29	@	.21	@
Esmeralda sausage	.38	@.39	†.32	@	.21	@
Guayule						
Duro, washed and dried	.43	@		@	.37	@
Leon, washed and dried		@		@	.32	@

Gutta Percha	May 23, 1925		April 26, 1926		May 24, 1926	
Gutta Siak	.17½	@.18		@	.32	@
Gutta Soh	.28	@.30		@		@
Red Macassar	3.00	@3.75		@	3.50	@
Balata						
Block, Ciudad Bolivar	.66	@.67		@	.63	@
Colombia	.54	@.55		@	.48	@
Panama	†.54	@		@	.48	@
Surinam sheet	.78	@		@	.82	@
amber	.85	@.86		@	.85	@
Chicle						
Honduras	‡.58	@.68	‡.64	@	‡.64	@
Yucatan, fine	‡.58	@.68	‡.65	@	‡.65	@

*Washed and dried crêpe. Shipment from Brazil.
†Nominal. ‡Duty paid.

Comparative Low and High New York Spot Rubber Prices

PLANTATIONS	1926*	May 1925	1924
First latex crêpe	$0.47 @ $0.50½	$0.44¼ @ $0.69½	$0.18 @ $0.23¼
Smoked sheet, ribbed	.47 @ .50½	.44¼ @ .68½	.18½ @ .22¾
PARAS			
Upriver, fine	.38 @ .43	.37¼ @ .57	.18¼ @ .21½
Upriver, coarse	.24½ @ .30½	.31 @ .45	.13¼ @ .16½
Islands, fine	.35½ @ .39	.33 @ .48	.15½ @ .18
Cametá	.24 @ .29	.17½ @ .28	.10½ @ .11¾

*Figured to May 22, 1926.

Rubber Exchange of New York, Inc.

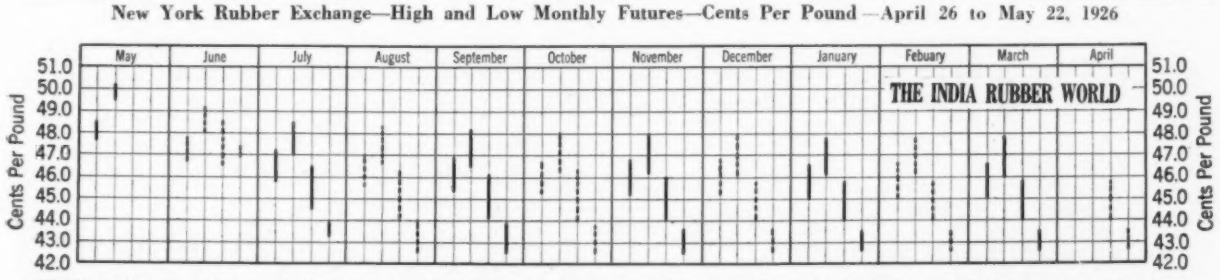
Trading on the New York Rubber Exchange from April 26 to May 22, inclusive, resulted in the sale of a total of 17,778 contracts equivalent to 22,222½ long tons. During the first week the market opened firm and active, advancing from 30 to 80 points on the various positions. May was the strongest position, closing at 49.30 cents. The second week the May position opened at 50 cents, June advanced on that date to 48.50 cents and July to 47.60. At the close of the week June declined to 48.00 cents and July to 46.80 cents, and the remainder of the list was nominal at 20 to 80 points below the July position. The British labor troubles and lack of factory interest were back of the decline. The sales for the week embraced 1,817 contracts equivalent to 4,542½ long tons. During the third week these advances were succeeded by declines of nearly equal magnitude and affected all positions. June dropped to 47.30

The Rubber Exchange of New York, Inc.

Daily Market Futures—Ribbed Smoked Sheets—Closing Prices—Cents Per Pound

1926	April 26	27	28	29	30	May 1	3	4	5	6	7	8	10	11	12	13	14	15	17	18	19	20	21	22
May	47.70	47.70	47.60	48.50	48.50	49.30	50.00	50.20	49.90	49.70	49.60	49.50	47.50	....	....	....	....	....	....	....	....	....	....	....
June	46.70	46.90	46.80	47.80	47.70	48.00	48.50	49.20	48.50	48.40	48.00	48.00	46.60	48.10	48.60	48.00	47.50	47.30	46.60	46.90	47.40	46.90	46.80	46.30
July	45.80	46.10	45.90	47.20	46.80	47.20	47.60	48.50	47.60	47.30	47.00	46.80	46.00	46.40	46.50	45.80	45.20	44.50	43.70	43.90	44.40	43.80	43.70	43.30
August	45.60	45.90	45.60	47.00	46.60	47.00	47.40	48.30	47.60	47.20	46.90	46.60	46.00	46.00	46.30	45.40	45.00	44.10	43.50	43.50	44.00	43.20	42.90	42.50
September	45.50	45.70	45.40	46.90	46.40	46.70	47.20	48.20	47.60	47.20	46.90	46.50	46.00	45.80	46.10	45.40	45.00	44.10	43.40	43.40	43.90	43.00	42.90	42.50
October	45.30	45.50	45.30	46.80	46.30	46.70	47.00	48.00	47.50	47.10	46.80	46.20	46.00	45.70	46.10	45.30	45.00	44.00	43.30	43.30	43.80	43.00	42.80	42.50
November	45.20	45.30	45.30	46.80	46.20	46.70	46.80	48.00	47.50	47.00	46.70	46.20	45.90	45.60	46.00	45.30	44.90	44.00	43.30	43.20	43.60	43.00	42.80	42.50
December	45.20	45.30	45.20	46.80	46.20	46.70	46.80	48.00	47.50	47.00	46.40	46.10	45.80	45.50	45.80	45.20	44.90	44.00	43.30	43.20	43.60	43.00	42.90	42.50
1927																								
January	45.00	45.10	45.20	46.60	46.00	46.60	46.60	47.80	47.40	47.00	46.40	46.10	45.80	45.30	45.80	45.10	44.60	44.00	43.30	43.20	43.50	43.00	43.00	42.60
February	45.00	45.10	45.20	46.60	46.00	46.60	46.60	47.80	47.40	47.00	46.40	46.10	45.80	45.30	45.80	45.10	44.60	44.00	43.30	43.20	43.50	43.00	43.00	42.60
March	45.00	45.10	45.20	46.60	46.00	46.60	46.60	47.80	47.40	47.00	46.40	46.00	45.40	45.30	45.80	45.10	44.60	44.00	43.30	43.20	43.50	43.00	43.00	42.60
April	....	....	....	....	....	....	....	....	....	....	....	....	....	45.10	45.80	45.10	44.50	44.00	43.20	43.20	43.50	43.00	43.00	42.60

New York Rubber Exchange—High and Low Monthly Futures—Cents Per Pound—April 26 to May 22, 1926



WEEKLY HIGH AND LOW PRICES ARE SHOWN IN FULL AND DOTTED LINES ALTERNATELY TO DISTINGUISH THE DIFFERENT POSITIONS.

cents; July to 44.50 cents; August and September to 44.10 cents with all other positions quoted nominal at 44.00 cents flat. The chief feature of the week was the increased activity and broadening of the operations on the Rubber Exchange. Previously the principal trading was in the near months but this week the trading extended to March, 1927, with heavy business for October and December. The British strike had an unsettling effect during the week, but having been adjusted, there will be no difficulty in shipments of May-June contracts. Advices from Singapore indicate willingness of holders to sell rubber and the market there is easier. Consuming centers report increased tire sales, although plant operations are still curtailed pending reduction of surplus inventories. Sales the third week were 2,416 contracts equal to 5,440 long tons.

In the fourth week the market continued its sagging tendency and except for a few temporary reactions the trend was generally downward. This is due to the absence of factory demand. The quotations at the close of the week were June 46.30 cents; July 43.30 cents; August, September, October, November and December 42.50 cents; and January to May, 1927, 42.60 cents. Sales in the fourth week were 2,967 contracts, equal to 7,417½ long tons.

On May 24 all records of trade volume in crude rubber were shattered on the Rubber Exchange when 1,329 contracts equivalent to 3,322½ long tons, were sold. Prices were weak and closed with losses ranging from 1 to 1½ cents. The June position closed at 45.20 a full cent below the day previous.

It is interesting to study what happened during the recent price declines, while operations have been increasing so quickly. In the months of June and July (the most active months traded in), on one day 267 lots, June, the variation in price between high and low was 60 points or just over ½ cent per pound. In July there were 328 lots with a variation between high and low of 50 points or ½ cent per pound. May 18, when the total of 780 lots was dealt in, the maximum difference in any one month between high and low was 80 points. This is conclusive proof that the operations on the Exchange, while not interfering with the natural trend of the market, make for stabilization and orderly movements.

London

Early in the last week of April the announcement by the Colonial Office of changes in the price basis governing the quarterly exportable allowance of plantation rubber caused the price to advance 1½*d* to 24. This price declined to 23½*d* by the middle of the week due to lack of buying interest. Under speculative interest it rose to 24¼*d* and ended the week fairly active at 24*d*. The following week the price advanced May 4 to 25*d* due to possibility of a tie-up of transportation by reason of the general strike. The market shortened its sessions by two hours daily and omitted sessions on Saturday for the same reason. There was very little buying interest and spot ribs began and closed the week at 24*d*.

The opening of the second week in May, ribs were at 23¾*d* and on announcement of settlement of the strike advanced ½*d*. The week's market was generally inactive and lifeless, closing at 23¼*d*. The third week was dull, declining and featureless. Prices declined from 22¾*d* at the beginning of the week to 22*d* at the close, just previous to the Whitsuntide holidays.

London stocks gained in tonnage during the month, and on May 10 were the highest since March 14, 1925. The weekly record was as follows: May 3, 18,951 tons; May 10, 19,356 tons; May 17, 19,356 tons; May 24, 19,026 tons.

Reclaimed Rubber

New York

In the past month orders have been received to forward delayed commitments and new business has originated with manufacturers of tires, automobile accessories, general mechanicals, insulated wire and tennis shoes. Reclaiming plants are operating full capacity and are still heavily back ordered. Prices remain firm and unchanged throughout the entire list. Recent scientific evidence of the technical and economic values of high grade reclaims in tire manufacturing has substantiated the claims of reclaimers who have consistently perfected reclaimed products in price and quality of great economic importance.

New York Quotations

May 25, 1926

	Specific Gravity	Price Per Pound
Auto Tire		
Black	1.21	$0.10¾ @ $0.11
Black, washed	1.18	.12 @ .12¼
Black selected tires	1.20	.12½ @ .12¾
Dark gray	1.35	.14½ @ .15½
Light gray	1.38	.16½ @ .17½
White	1.40	.19 @ .20
High Tensile Black		
Super-reclaim, No. 1	1.20	.24 @ .25
No. 2	1.20	.18 @ .19
Shoe		
Unwashed	1.60	.10½ @ .10¾
Washed	1.50	.12¾ @ .13
Tube		
No. 1	1.00	.25 @ .26
No. 2	1.18	.18 @ .19
Uncured Tire Friction		
No. 1	1.00	.40 @ .42
No. 2	1.20	.30 @ .32
Miscellaneous		
High grade, red	1.35	.18 @ .19
Truck tire, heavy gravity	1.55	.10 @ .10½
Truck tire, light gravity	1.40	.10½ @ .11
Mechanical blends	1.60	.08 @ .09

WESTINGHOUSE PLANS LARGE BUILDING PROGRAM

A program of expansion contemplated by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, involving an expenditure of $5,525,000, includes a new general office building now approaching completion at the East Pittsburgh works, and costing $1,500,000; a storehouse for finished products, to cost $500,000, will also be erected at Mansfield, Ohio; the office, warehouse and service station building under construction at Detroit, Michigan, will represent an outlay of $400,000. The George Cutter division of the Westinghouse interests also has under construction a $300,000 building in St. Louis, Missouri, while additions to the company's works in East Springfield, Massachusetts, will represent an outlay of approximately $475,000. At Sharon, Pennsylvania, plans are being prepared for the erection of two buildings, to cost $275,000, while at Derry, Pennsylvania, a $75,000 office building, two stories in height, is now under construction.

The following crude rubber importers, dealers, and brokers are listed in our Buyers' Directory. For complete information see Index of Advertisers on page 110.

Araujo, J. G. & Co., Manaos, Brazil.
Astlett, H. A., & Co., New York, N. Y.
Baird Rubber & Trading Co., New York, N. Y.
Buckleton & Co., Ltd., Liverpool, England.
Chalfin, Joseph, & Co., Inc., New York, N. Y.
Chipman, R. L., New York, N. Y.
Dunbar, F. W., & Co., New York, N. Y.
Dunbar, J. Frank, Co., Inc., New York, N. Y.
Hankin, George, & Co., London, England.
Hardy, R. S., Co., New York, N. Y.
Hentz, H. & Co., New York, N. Y.
Hirsch, Adolph, & Co., New York, N. Y.
Jacoby, Ernest, Boston, Massachusetts.
Muehlstein, H. & Co., New York, N. Y.
Wilson, Charles T., Co., Inc., New York, N. Y.

The Market for Chemicals and Compounding Ingredients

New York

THE movement of standard rubber compounding ingredients continues at satisfactory volume to meet the requirements of the automobile tire division of the industry, the output of which has increased with the coming of more seasonable weather and drying up of country roads. Material prices remain generally unchanged from those of a month ago. Prices for the cheaper grades of fillers such as ground whiting and clay have reached insignificant levels by reason of reckless competition.

ACCELERATORS. Improved demand is noted for those accelerators that are particularly adapted for use in reclaimed rubber. For high quality specialty work in various lines there is a strong tendency for manufacturers to utilize accelerators active at low temperatures, even as low as that of boiling water or, in special cases, room temperatures.

ANTI-OXIDANTS. The anti-oxidant situation has recently been simplified by license agreement with the company owning the three basic patents covering their production and use. Anti-oxidants seem destined to prove as important a factor in the economy of the rubber industry as accelerators already are.

BENZOL. The demand for this industrial solvent is good in all of its many lines of use. The price continues firm after an advance of one cent a gallon early in May.

CARBON BLACK. Prices for standard rubber makers grade are firm and the demand has improved due to its value in compounding with reclaimed rubber.

CLAY. The strong demand for rubber clays continues. Prices range from $9 to $20 a ton. Clays are losing slightly to carbon black and zinc oxide owing to the special value of these for reinforcing reclaims.

LITHARGE. Two minor price reductions have occurred in the commercial grade, lowering the price in casks to 10½ cents a pound. The demand has improved.

LITHOPONE. The demand has expanded and prices continue firm and unchanged.

MINERAL RUBBER. This is the only variety of rubber of ample domestic and unrestricted production. It is essential to much of today's rubber economy and never lacks for a strong demand.

SOLVENT NAPHTHA. There is no accumulation of surplus stocks of this solvent. The demand is always good and at present the material is sold ahead.

SUBLIMED LEAD. There is more inquiry but in general the rubber demand is somewhat restricted and seasonal.

ZINC OXIDE. This material is moving in fair volume. The price of the 35 per cent grade has been reduced ⅞-cents a pound. That of the pure grade remains unchanged.

New York Quotations

May 25, 1926

Accelerators, Inorganic			
Lead, carbonate	lb.	$0.10¾	@
Lead, red	lb.	.11	@
sublimed blue	lb.	.10	@
sublimed white	lb.	.10	@
Lime, R. M. hydrated	ton	15.00	@
Litharge	lb.	.10½	@
Magnesia calcined, light, (bbls.)	lb.	.20	@
calcined, md. light (bbls.)	lb.	.07	@
calcined, extra light (bbls.)	lb.	.40	@
calcined, heavy (bbls.)	lb.	.05	@
magnesium, carb., light (bags)	lb.	.06½	@ .07
Orange mineral A.A.A	lb.	.13¾	@
Rubber lead No. 4	lb.		@
Accelerators, Organic			
A1	lb.	.26	@ .32
A 5-10	lb.	.35	@ .40
A-7	lb.	.85	@ .90
A 10	lb.	.50	@ .65
A-11	lb.	.85	@ .95
A-19	lb.	.85	@ .95
A-40	lb.	.75	@ .90
Z-88	lb.	.75	@ 1.00
Aldehyde ammonia	lb.	.82	@ .95
Aniline (drums)	lb.	.17	@
B. B.	lb.	1.05	@ 1.07
D. P. G. salt	lb.	.76	@
Di-ortho-tolylguanidine	lb.	1.08	@
Diphenyl guanidine	lb.	.88	@
Ethylidine aniline	lb.	.65	@
Excellerex	lb.	.35	@ .40
Formaldehyde aniline	lb.	.42	@
Grasselerator 808	lb.	1.25	@ 1.50
Heptene	lb.	.55	@
Hexamethylene tetramine	lb.	.80	@ .85
Methylene aniline	lb.		@
Methylene dianiline	lb.	.40	@
Monex	lb.	3.75	@ 5.00
No. 999 lead oleate	lb.	.16	@ .18½
R. & H. 50 (100 lb. drums)		.60	@
Super-sulphur, No. 1	lb.	.50	@
No. 2	lb.	.18	@ .25
Tensilac No. 39	lb.	.70	@
No. 41	lb.	.65	@
Thiocarbanilid	lb.	.22	@ .26
Trimene	lb.	.75	@
base	lb.	1.20	@ 1.35½
Accelerators, Organic—*(Continued)*			
Triphenylguanidine	lb.	$0.69	@ .73
Tuads	lb.	4.50	@ 5.00
Vulcone	lb.	.74	@
Zimate	lb.	5.00	@
Acids			
Acetic 28% (bbls.)	100 lb.	3.25	@ 3.50
glacial (carboys)	100 lb.	11.76	@12.49
Oleic	lb.	.10	@ .10½
Stearic	lb.	.16	@
Sulphuric, 66° (carboys)	lb.	.06	@ .08
Alkalies			
Caustic soda	100 lbs.	3.76	@ 3.91
Sulphite soda	100 lbs.	3.25	@ 3.50
Anti-Oxidants			
Age-Rite	lb.	.85	@ .90
Antox	lb.	.88	@
Colors			
BLACK			
Bone	lb.	.05½	@ .11
Carbon			
A. & W. nonfli No. 1	lb.		@
No. 2	lb.		@
Aerfloted grrow	lb.	.08	@ .12
Compressed	lb.	.08½	@ .12½
Uncompressed	lb.	.08	@ .12
Micronex	lb.	.09	@ .13
Drop	lb.	.07	@ .15
Lampblack	lb.	.10	@ .40
Thermatomic carbon	lb.	.05	@
BLUE			
A. & W. blue	lb.		@
Du Pont, N.	100 lbs.	1.35	@
Marine, A. C.	100 lbs.	1.30	@
Prussian	lb.	.34	@ .35
Ultramarine	lb.	.09	@ .35
BROWN			
Sienna, Italian	lb.	.07	@ .07½
Umber, Turkey	lb.	.05½	@ .06½
GREEN			
A. & W. green	lb.		@
Chrome, light	lb.	.30	@ .34
medium	lb.	.33	@ .38
dark	lb.	.35	@ .40
Du Pont, G. L.	100 lbs.	.30	@
Y. L.	100 lbs.	.75	@
Oxide of chromium	lb.	.38	@
Colors—*(Continued)*			
ORANGE			
Du Pont R. O.	100 lbs.	$1.30	@
R. X.	100 lbs.	1.30	@
Y. O.	100 lbs.	1.60	@
Y. X.	100 lbs.	1.15	@
RED			
A. & W. red	lb.		@
purple	lb.		@
Antimony, golden	lb.	.16	@
golden 15/17%	lb.		@
Antimony, crimson	lb.		@
crimson, R.M.P. No. 3.	lb.	.48	@
7-A	lb.	.34	@
Z-2	lb.	.19	@
Sulphuret vermilion	lb.	.37½	@
Du Pont R. I.	100 lbs.	2.00	@
R. S.	100 lbs.	1.45	@
Brilliant A. C.	100 lbs.	1.35	@
Iron Oxides			
bright red pure domestic	lb.	.12	@
bright red pure English	lb.	.14	@
bright red reduced English	lb.	.11	@
bright red reduced domestic	lb.	.10	@
Indian (maroon), red pure domestic	lb.	.11	@
Indian (maroon), red pure English	lb.	.11	@ .15
Indian (maroon), red reduced English	lb.	.09	@ .10
Indian (maroon), red reduced domestic	lb.	.08	@
Oximony	lb.	.13¾	@
Spanish red oxide	lb.	.04	@
Venetian reds	lb.	.02½	@ .05½
Vermilion, English quicksilver	lb	1.57	@ 1.62
WHITE			
Albalith	lb.		@
Lithopone	lb.	.05½	@ .06¼
Azolith	lb.	.05⅝	@ .06⅛
Sterling	lb.	.05⅝	@ .06⅛
Zinc Oxide			
AAA (lead free)	lb.	.07¼	@ .07¾
Azo (factory):			
ZZZ (lead free)	lb.	.07¼	@ .07¾
ZZ (5% leaded)	lb.	.06¾	@ .07¾
Z (8% leaded)	lb.	.07⅛	@ .07¾

Colors

WHITE—*(Continued)*

French Process			
Green seal	lb.	$0.11½@	$0.11½
Red seal	lb.	.10½@	
White seal	lb.	.12½@	.12½
Horse Head Brands			
Selected	lb.	@	
Special	lb.	@	
XX red	lb.	@	
Leaded Brands			
Lehigh	lb.	.07½@	.07½
Standard	lb.	.06½@	.07½
Sterling	lb.	.07½@	.07½
Superior	lb.	.07½@	.07½
Palmerton Process			
Kadox, black	lb.	@	
blue	lb.	@	
red	lb.	@	

YELLOW

A. & W. yellow	lb.	@	
Arsenic	ton	15.00 @	
Chrome	lb.	.17½@	.18½
Du Pont N	100 lbs.	4.00 @	
Grasselli cadmium	lb.	1.50 @	
Ochre, domestic	lb.	.02 @	.02½
imported	lb.	.03½@	.04
Oxide, pure	lb.	.09 @	.10½

Compounding Ingredients

Aluminum flake (sacks c.l.)	ton	21.85 @	
(sacks l.c.l.)	ton	24.50 @	
Filler	ton	27.00 @	
Silicate	ton	25.00 @	26.00
Ammonia carbonate	lb.	.13½@	.17½
Asbestine	ton	13.50 @	25.00
Barium, carbonate	ton	54.00 @	55.00
dust	lb.	.05 @	.06
Barytes, imported	ton	30.00 @	
water ground and floated	ton	23.00 @	25.00
Basofor	lb.	.04½@	
Blanc fixe, dry	ton	85.00 @	90.00
pulp	ton	60.00 @	65.00
Chalk	lb.	.02½@	.04¾
Clay, blue ribbon (c. l. fcty.)	ton	14.00 @	
Blue Ridge, dark	ton	9.00 @	
light	ton	12.00 @	
Catalpo (facty.)	lb.	.02 @	
China	lb.	.01¾@	.02½
Dixie	ton	20.00 @	
Langford	ton	12.00 @	
Mineral Flour (Florida)	ton	21.00 @	23.00
Suprex	ton	13.00 @	20.00
Tuscan	ton	12.00 @	
White floss	ton	17.00 @	
Cotton flock, black	lb.	.11 @	.12½
light-colored	lb.	.12 @	.14
white	lb.	.14 @	.24
Cotton linters clean mill run	lb.	@	
Fossil flour	lb.	.02½@	.03
Glue, high grade	lb.	.19 @	.29
medium	lb.	.18 @	.24
low grade	lb.	.12 @	.14

New York Quotations

May 25, 1926

Compounding Ingredients—*(Continued)*

Infusorial earth	lb.	$0.02½@	$0.03
Mica, amber (fact'y)	lb.	.05 @	
Diamond	lb.	.05 @	.07
Pumice stone, powd	lb.	.02½@	.04
Rotten stone (bbls.)	lb.	.02½@	.04¼
Slate flour (fact'y c. l.)	ton	12.00 @	
Soap bark	lb.	.12 @	
Soapstone	ton	15.00 @	22.00
Sodium bicarb	100 lbs.	2.00 @	
Starch, pcwd. corn			
Buffalo (bbls.)	100 lbs.	3.59 @	3.69
Buffalo (bags)	100 lbs.	3.32 @	3.42
Talc, domestic	ton	16.00 @	25.00
French	ton	25.00 @	
Terra blanche	ton	30.00 @	33.00
Whiting:			
Commercial	100 lbs.	1.00 @	1.15
English, cliffstone	100 lbs.	1.50 @	
Quaker	ton	13.00 @	
Sussex	ton	8.00 @	
Westminster Brand	100 lbs.	@	
Witco (c.l.) (fact'y)	ton	12.00 @	
Whiting, imp. chalk	100 lbs.	.90 @	1.10
Paris White, Eng. Cliffstone,	100 lbs.	1.50 @	2.50
Wood flour	lb.	.01⅞@	
Pulp, XXX (fact'y)	ton	35.00 @	
X (fact'y)	ton	25.00 @	

Mineral Rubber

Genasco (facty.)	ton	50.00 @	52.00
Gilsonite (fact'y)	ton	37.14 @	39.65
Granulated M. R	ton	33.00 @	38.00
Hydrocarbon, hard	ton	29.00 @	35.00
Hydrocarbon, soft	ton	29.00 @	35.00
Ohmlac Kapak, M-R	ton	@	
K-4	ton	@	
320/340 m. p. hydrocarbon	ton	47.00 @	52.00
300/310 m. p. hydrocarbon	ton	42.00 @	47.00
Paracura (fact'y)	ton	70.00 @	72.50
Pioneer, M. R., solid (fac.)	ton	42.00 @	44.00
M. R. granular	ton	52.00 @	54.00
Robertson, M. R. solid (facty.)	ton	35.00 @	75.00
M. R. gran. (facty.)	ton	42.00 @	80.00

Oils (Softeners)

Castor, No. 1, U. S. P	lb.	.13¼@	
No. 3, U. S. P	lb.	.12½@	
Corn, crude (bbls.)	lb.	.13½@	
Cotton, summer yellow	lb.	.13 @	
Cycline	gal.	.28 @	.35
Glycerine	lb.	.26½@	.27
Linseed, raw	gal.	.11½@	
Liquid rubber	lb.	.12 @	
Palm lagos	lb.	.09¼@	
niger	lb.	.08¾@	
Peanut, crude	lb.	.13½@	
refined	lb.	.14 @	
Petrolatum, standard	lb.	.06 @	.08
sticky	lb.	.08 @	.10
Pine, steam distilled	gal.	.68 @	
Plastone	lb.	.39 @	
Rapeseed, refined	gal.	.90 @	
Rosin	gal.	.62 @	
Synthecite	lb.	.06 @	
Synthe-Plastic	lb.	.06 @	
Tackol	lb.	.09 @	.15
Tar	gal.	.42 @	

Resins and Pitches

Pitch, Burgundy	lb.	$0.06½@	
Coal tar	lb.	.02 @	
Fluxol hardwood	lb.	.02 @	.04
Pine tar, retort	lb.	.04 @	
ponto	lb.	.06½@	
Rosin, K (bbl.)	280 lbs.	12.85 @	
strained (bbl.)	280 lbs.	10.25 @	
Shellac, fine orange	lb.	.70 @	
Tar, pine, retort	bbl.	19.00 @	
kiln	bbl.	17.00 @	

Solvents

Benzol (90%, 7.21 lbs. gal.) pure	gal.	.30 @	
Carbon bisulphide (10.81 lbs. gal.) 99.9% pure (drums)	lb.	.05½@	.06¼
tetrachloride (13.28 lbs. gal.) 99.7% pure (drums)	lb.	.06¼@	.06½
Gasoline			
No. 303			
Tankcars	gal.	.23 @	
Drums, c. l.	gal.	.26 @	
Drums, l. c. l.	gal.	.29 @	
Naphtha			
68° Bé., 122°, 324°	gal.	.20 @	
70° Bé., 114°, 314°	gal.	.21 @	
71° Bé., 112°, 304°	gal.	.22 @	
Turpentine, spirits	gal.	.89 @	
wood, steam distilled	gal.	.82 @	

Substitutes

Black	lb.	.08½@	.14
Brown	lb.	.08½@	.15
White	lb.	.09¼@	.17

Vulcanizing Ingredients

Sulphur chloride	lb.	.08½@	
Soft rubber, 100% pure (c.l.)	100 lbs.	@	
(l.c.l.)	100 lbs.	@	
Sulphur, Brooklyn brands			
Refined velvet (bbls.)	240 lbs.	@	
(bags)	150 lbs.	@	
Superfine flour (bbls.)	210 lbs.	@	
(bags)	100 lbs.	@	
Tire brand, superfine	100 lbs.	@	
Tube brand, velvet	100 lbs.	@	

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com.	lb.	.55 @	
carnauba	lb.	.38 @	.50
ceresine, white	lb.	.12½@	
montan	lb.	.07 @	.07½
ozokerite, black	lb.	.30 @	
green	lb.	.32 @	
Paraffin			
122/124 white crude scale	lb.	.05½@	.06
124/126 white crude scale	lb.	.05½@	.06½
123/125 fully refined	lb.	.06½@	.06¾
125/127 fully refined	lb.	.06¾@	.06¾

THE USE OF RECLAIMED RUBBER

At the special meeting of the Rubber Division of the American Chemical Society held at Akron, Ohio, February 22, 1926, a discussion of wide-spread interest took place on the use of reclaimed rubber as exemplified in the recent reports by the Bureau of Standards and the paper of Bierer and Davis.

A formal announcement by the Special Publicity Committee of the Rubber Division, reviewing the results, stated that in the opinion of the Rubber Division of the American Chemical Society, the importance of the subject and the wide publicity it has already received, in various senses, warrant an authentic expression of the consensus of opinion on this point held by its members. This opinion may be stated as follows:

Soft rubber compounds of the highest quality, designed to withstand abrasive wear (such as those used in the tire industry) may include properly made reclaimed (with a corresponding but not equal reduction in crude rubber content), provided that proper attention is given to the details of compounding and cure.

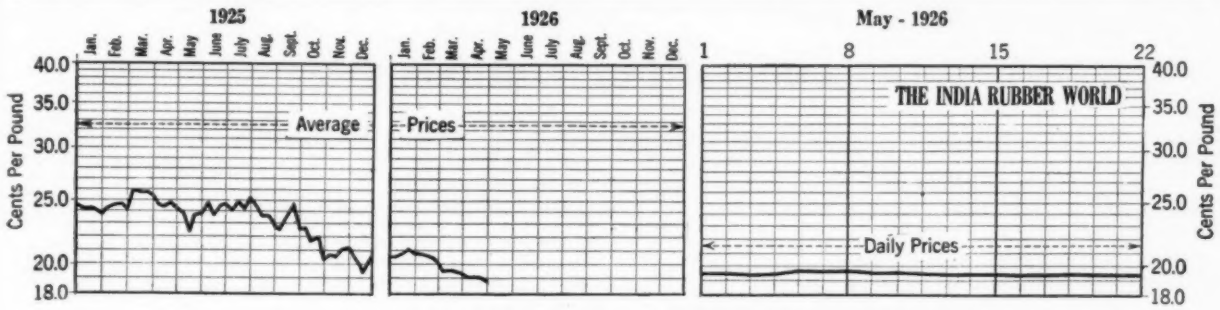
AMERICAN EXPORTS OF RUBBER THREADS SHOWED A DECLINE during March as compared with the previous month, the total values being $161,241 and $225,738. Shipments of rubber bands and erasers rose from a value in February of $28,397 to $40,648 for March.

HARD RUBBER VARNISH

A special hard rubber and nitrocellulose varnish has recently been patented, and is an unusual combination. It has been found effective as a protection against corrosion of metal surfaces and can be applied to clean metal without the necessity of a special priming coating of other material. This varnish may be produced in shades from brown to black and with high luster or matt surface. It is suitable as a finish for all finished metal objects such as optical instruments, laboratory apparatus, gages, meters, camera parts, automobile metal trim and for numerous similar purposes where protection is required against injury from corrosion.

The varnish consists of two mixed solutions, the first being a solution of hard rubber dust in China wood oil, and benzol. The second is nitrocellulose dissolved in ethyl acetate. The final varnish is made by combining 25 parts of the first solution with 75 parts of the second.

This varnish can be applied as a spray coating of low viscosity and dries to a hard coating resistant to water because of the relatively large proportion of solids to the volatile solvent. The drying action proceeds about 20 minutes at room temperature to a point when the goods may be handled and is completed in about 1 hour. Successive coats may be applied upon each other and they adhere strongly.



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The May market for spot middlings was generally inactive with slight price fluctuations, the range being from 18.95 cents on May 1; 19.25 cents on May 8; 18.70 cents on May 17 and 18.75 cents on May 24. The trade is awaiting more convincing views of crop progress, to establish a definite price tendency. Meanwhile the cotton market is being governed largely by weather conditions in the cotton belt.

The British strike, early in the month, added some uncertainty to the situation. A continuance of British labor troubles would react very unfavorably on the world's trade and upon exports of American cotton. The hope of another large yield persists in spite of the complaints about the late start of the crop. The acreage has not been decreased over 2 to 3 per cent.

There does not seem to be much demand from the spinners. It is rumored that one southern buyer received an inquiry from a large tire concern for 15,000 bales of deep blues and grays in 1 1/16 to better staple but the sale has not been effected because of the low price offered.

EGYPTIAN COTTON. During the past month staple cottons have maintained their premiums and there has been very little pressure to sell, although lots here and there have been bought on moderately cheap offers. The slow decline in the Egyptian market has recently been checked and during the past few days prices have tended to harden. This has been occasioned by better inquiry from spinners. On the other hand, stocks in Egypt are still very large and there seems to be every prospect of as large a crop this year as was raised last.

Recent sales of Pima cotton have practically cleared up unsold stocks. Sea Islands are still being offered in small lots.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The market for mechanical ducks continues quiet although it has shown some improvement during the past week. Owing to the curtailment of production now taking place in southern mills there is no probability of over production of duck taking place. In drills and osnaburgs the market is active for limited quantities and nearby deliveries.

RAINCOAT FABRICS. This trade has been very quiet due to the dry and cold weather. Improved conditions will doubtless soon appear. Raincoat fabric prices are unchanged from a month ago.

SHEETINGS. Prices are somewhat easier. Very little interest is shown by buyers except for immediate requirements. The market is very listless and no improvement is anticipated for some time to come.

TIRE FABRICS. Prices are considered nominal and are not liable to change until marked revival of tire sales and production, delay of which is attributable to unseasonably cold weather.

The condition of the fabric business has been generally quiet with prices nominal. Early in May it was reported that an order for 5,000,000 pounds had been placed with deliveries of 1,000,000 pounds annually. Another contract of 200,000,000 pounds was said to have been made on the cost plus plan with deliveries covering 10 years or more and provision for revision of the contract when needful. A number of other orders have been placed ranging from 25,000 to 500,000 pounds.

In general the demand is running somewhat less than normal with most tire factories hesitating to purchase for future needs. There has been steady placing of small orders especially for quick delivery.

New York Quotations

May 25, 1926

Drills		
38-inch 2.00-yard ..... *yard*	$0.17½	@
40-inch 3.47-yard	.10½	@
52-inch 1.90-yard	.18½	@
60-inch 1.52-yard	.23½	@
Ducks		
38-inch 2.00-yard ..... *yard*	.17½	@
40-inch 1.47-yard	.23½	@
72-inch 16.66-ounce	.06½	@
72-inch 17.21-ounce	.41½	@
MECHANICAL		
Hose and belting.... *pound*	.34	@
Specials	.38	@
TENNIS		
52-inch 1.35-yard ..... *yard*	.26½	@
Hollands		
DEAD FINISH		
Standard, 37-inch ..... *yard*	.19½	@
42-inch	.23½	@
RED SEAL		
36-inch	.16	@
40-inch	.16½	@
50-inch	.26	@
FLAT FINISH		
Imperial, 36-inch	.15½	@
40-inch	.17½	@
Osnaburgs		
40-inch 2.35-yard ..... *yard*	.14½	@
40-inch 2.48-yard	.14½	@
40-inch 3.00-yard	.11½	@
37-inch 2.42-yard	.14½	@
Raincoat Fabrics		
COTTON		
Bombazine 64 x 60.... *yard*	.12½	@
Bombazine 60 x 48.....	.11½	@
Plaids 60 x 48.....	.12¼	@
Plaids 56 x 44.....	.11¼	@
Surface prints 60 x 48....	.12½	@
Surface prints 64 x 60.....	.13½	@
Sheetings, 40-inch		
48 x 48, 2.50-yard..... *yard*	.13¼	@ .13½
48 x 48, 2.85-yard.....	.11¾	@ .12
64 x 68, 3.15-yard	.12¾	@ .13
56 x 60, 3.60-yard.....	.10¾	@ .10⅞
48 x 44 3.75-yard.....	.09	@ .09¼
Sheetings, 36-inch		
48 x 48, 5.00-yard..... *yard*	$0.07⅛	@ .07¼
40 x 40, 6.15-yard.....	.05¾	@ .06
Tire Fabrics		
SQUARE WOVEN 17¼-ounce		
Egyptian, karded .... *pound*	.49	@ .50
Peeler, karded	.45	@ .46
CORD 23/5/3		
Egyptian, combed .... *pound*	.58	@ .60
Egyptian, karded	.50	@ .51
Peeler, combed, 1 1/32-in.....	.49	@ .50
Peeler karded, 1 1/32-in.....	.45	@ .46
CORD 23/4/3		
Peeler, karded..... *pound*	.46	@ .47
CORD 13/3/3		
Peeler, karded..... *pound*	.42	@ .44
LENO BREAKER		
8-oz. Peeler, karded.... *pound*	.43	@ .44
10-oz. Peeler, karded.....	.43	@ .44
CHAFER		
8.25-oz. Peeler, karded (2 ply) ..... *pound*	.41	@ .43
9.5-oz. Peeler, karded (4-ply)	.45	@ .46
12-oz. Peeler. karded.....	.46	@ .48
14-oz. Peeler, karded.....	.44	@ .45

The Cotton Outlook

ALL authorities seem to agree in saying that the cold, wet spring will prove most unfavorable to the cotton crop, the average planting also being two weeks later than usual. Acreage this year is however being variously estimated, one report quoting the figure of 45,322,900 acres as against 45,189,000 in 1925. *The Journal of Commerce* says:

As far as the Southwest is concerned, acreage is likely to be somewhat less than last year and the crop is already late. It is significant that in the more southerly districts where preparations and actual planting are the furthest along most estimates indicate virtually no change in acreage from last year or else show a slight increase. Further north, however, there is a more noteworthy disposition to estimate acreage at a figure below last year. It is, of course, in these latter districts that it is least possible at this time to be sure what the final figure will be. However, in the Southwest where the shortage of feed crops last year was so marked, not to say severe, farmers are said to be planning to devote more than the usual amount of land attention to the cultivation of such crops, and it seems rather probable that this tendency will in some degree at least cut into the acreage given over to cotton. It now appears that as compared with last year the cotton acreage will be larger in the central south than in Texas and Oklahoma.

In regard to present conditions the *Daily News Record* quotes from a cotton report:

In sections where more cotton will be planted than last year, farmers give these reasons for increasing: absence of boll weevil last year; more interest in farming; more labor on the farm than for some time; and the unusual success in the yield last year. In counties where decreases in acreage are shown the principal reasons given are: fear of the late start causing activity of weevil on young cotton; scarcity and high price of foodstuffs and food; lack of financial resources—in many instances merchants and banks will not make advances, and lastly, the hope of obtaining better prices for the crop of 1926 by planting less acreage this spring.

The Census Bureau, in its final estimate of the 1925 cotton crop as published March 20, announces a yield of 16,085,905 bales, this figure based on actual returns from the ginneries. Practically the same total is now given by the Department of Agriculture in its revision of its previous estimates. The past year's crop of 16,086,000 bales compares with 13,627,936 in 1924, with 10,139,671 in 1923, with 7,953,641 in 1921, the boll weevil year, and with 16,134,930 in 1914, when the largest cotton crop in our history was raised.

Domestic and Foreign Consumption of American Cotton

The consumption of cotton in the United States during April of the present year totaled, according to census reports, 575,799 bales, a considerable decline from the March figure of 634,593 bales, or that for April, 1925, of 596,541 bales. This domestic consumption during March surpassed all monthly records since 1914, and probably all previous records. Until that month the largest monthly consumption was 624,264 bales, in March, 1923; the smallest since 1914 was 295,292, in December, 1920. In the nine months ended May 30, the cotton consumed in the United States amounted to 4,954,807 bales, as compared with 4,683,740 bales in the corresponding period of last year.

In regard to world consumption of cotton *The Journal of Commerce* believes that a 14,000,000 bale crop will prove sufficient for all needs, saying further:

Although world consumption of American cotton this season will doubtless be the largest since pre-war days, it will fall so far short of last year's production that the world carryover next July will probably be the largest since the abnormally big end-season stock in the summer of 1921. Last year this country made, exclusive of linters, but including city crop, about 16,300,000 bales. It will probably spin this season only about 13,900,000 bales.

This means that about 2,400,000 bales of last year's growth will be left July 31 to become part of next season's supply. Since the carryover from last season was about 3,600,000, the total carryover at the end of this season will be about 6,000,000 bales. This will be over twice the carryover at the end of the season before last.

The Cotton Service Department of the Merchants National Bank, Boston, makes the following comments on prospects for the current cotton season:

A world consumption of 13,900,000 bales would be considerably below early season expectations. It was predicted in many quarters last fall that the world would use 14,250,000 to 14,500,000 bales, and in some places predictions were made of a consumption of 15,000,000 bales. Consumption last season was 13,142,000 bales.

The expected carryover of 6,000,000 bales would compare with 3,592,000 at the end of last season and the abnormally small carryover of 2,754,000 bales at the end of the season before last. It would be the largest since the abnormally large end-season accumulation of 9,944,000 bales in the summer of 1921.

Conditions in the world's cotton manufacturing industry continue highly irregular. In the United States, the chief consuming country, mills are running at a relatively high rate but are gradually reducing operations. In England and Germany, which come next in order as heavy consumers of cotton, mills are curtailing heavily with trade conditions very depressed. France and Japan coming next in importance are using cotton at a maintained high rate.

Higher Grade Cotton Needed?

Much interest was shown in the sessions representing the third annual convention of the Atlantic Cotton Association, held May 10 in Charleston, South Carolina. During these meetings especial pleas were made for more intensive study of cotton cultivation and the use of better seed. The address prepared by W. M. Jardine, Secretary of Agriculture, is here quoted in part:

The only secure basis for our cotton industry is in the improvement of the product. There is no way to improve the product except by furnishing cash encouragement for quality. Discrimination in buying is just as important as high prices. Upland long staple brings from 30 to 60 per cent more than middling short staples. Farmers who produce the long staple kind should in simple justice be rewarded proportionately. It is useless from the standpoint of encouraging quality production merely to get manufacturers to pay more for good fiber. The premium for superior fiber must go back to the farmers. Community production of better cotton would go forward more rapidly if farmers were sure of better markets for good cotton than for short fiber. It is the business of the cotton trade to give them this assurance.

The world demands good strong cotton of the American upland type, ranging from $\frac{7}{8}$-inch to $1\frac{1}{8}$ inches in length of staple. The production of short staple cotton in the United States has been increasing. It is estimated that more than a million bales, or about 8 per cent of the crop produced last year, consisted of cotton less than $\frac{7}{8}$-inch in length of staple. Manifestly this is not desirable.

Cotton spinning tests recently made by the United States Department of Agriculture indicate that the better bred varieties of cotton have a higher spinning quality, and that pure strains of cotton are better from a manufacturing as well as from a production standpoint. They have a distinctly higher value than ordinary gin run cotton. It ought to be possible to employ the same discrimination in buying cotton from farmers as in selling cotton to spinners.

Growth of Southern Cotton Textile Industry

According to figures published in the Southern Textile Directory, the southern states now have 13,178,395 spindles in operation, or 46.86 per cent of all the cotton spindles in the United States, while this section of the country consumed during 1925 65.09 per cent of the cotton used in American mills.

REPORT OF RIMS INSPECTED AND APPROVED BY THE TIRE AND RIM ASSOCIATION OF AMERICA, INC.

Rim Size	April, 1926 Number	April, 1926 Per Cent	Four Months, 1926 Number	Four Months, 1926 Per Cent
Motorcycle Rims				
24 x 3	.....	..	15,424	0.2
26 x 3	8,882	0.4	34,336	0.4
28 x 3	237	0.0	2,377	0.0
Clincher Rims				
30 x 3	.....	..	1,244	0.0
30 x 3½	274,168	12.0	1,379,187	15.5
31 x 4	2,563	0.1	15,609	0.2
Balloon Rims				
27 x 3½	26	0.0	26	0.0
28 x 3½*	928,615	40.7	3,426,364	38.5
29 x 3½*	.....	..	.....	..
28 x 4*	307,427	13.6	982,681	11.0
29 x 4*	287,539	12.6	1,171,345	13.1
30 x 4*	628	0.0	2,715	0.0
29 x 4½*	42,869	1.9	188,968	2.1
30 x 4½*	126,691	5.5	652,650	7.3
31 x 4½*	10,099	0.4	15,585	0.2
30 x 5*	33,702	1.5	110,548	1.3
31 x 5*	49,781	2.2	176,392	2.0
33 x 6*	13,918	0.6	50,692	0.6
High Pressure Rims				
30 x 3½ SS	16,977	0.7	55,790	0.6
32 x 3½	304	0.0	2,354	0.0
31 x 4	2,015	0.1	6,177	0.1
32 x 4	29,021	1.3	76,182	0.9
33 x 4	1,004	0.0	3,470	0.0
34 x 4	.....	..	.....	..
32 x 4½	41,277	1.8	162,242	1.8
33 x 4½	.....	..	496	0.0
34 x 4½	2,902	0.1	7,210	0.1
Truck 20"				
30 x 5	65,976	2.9	209,737	2.4
32 x 6	15,568	0.7	76,760	0.8
34 x 7	4,216	0.2	13,218	0.2
36 x 8	505	0.0	3,587	0.0
40 x 10	.....	..	80	0.0
Truck 24"				
34 x 5	5,355	0.2	14,717	0.2
36 x 6	9,375	0.4	34,730	0.4
38 x 7	1,538	0.1	7,499	0.1
40 x 8	843	0.0	3,582	0.0
44 x 10	210	0.0	301	..
Totals	2,284,171	100.0	8,904,275	100.0

Experimental		Experimental	
25 x 3½	722	25 x 3½	...
26 x 3½	512	26 x 3½	542
36 x 7	954	36 x 7	1,056

	Per Cent		Per Cent
Motorcycle	0.4	Motorcycle	0.6
Clincher	12.1	Clincher	15.7
Balloon SS	79.0	Balloon SS	76.1
High Pressure	4.0	High Pressure	3.5
Truck—20"	3.8	Truck—20"	3.4
Truck—24"	0.7	Truck—24"	0.7

Note—3,025 of the 26 x 3 M.C. rims are 3" auto section.
*Balloon tires.

BRITISH IMPORTS OF AMERICAN TIRES

In general American tire exports to British possessions have shown a decline during 1925, this being especially evident in such shipments to the United Kingdom, where since 1923 the total values for American-made pneumatic casings, inner tubes and solid tires have been: 1923, $3,765,842; 1924, $2,970,688, and 1925, $2,970,680. A similar falling-off is shown in the corresponding exports to British South Africa, according to the following: 1923, $531,907; 1924, $430,200, and 1925, $389,907. Declines of less importance are represented in the shipments to British West Africa, British Guiana and various sections of British Oceania. As against this, the American tire exports to Australia have advanced from a value in 1923 of $1,150,357 to $1,306,590 in 1924, and $1,881,308 in 1925, while the corresponding figures for shipments to British India have been: 1923, $242,668; 1924, $254,769, and 1925, $516,586. There has also been a considerable gain in the exports to British East Africa, British Honduras, and certain parts of the British West Indies. American tire exports to the Straits Settlements have risen from a value in 1923 of $149,428 to $165,622 for 1924, and for 1925, $265,396. New Zealand, always one of the important markets, shows a considerable decline, the totals being: 1923, $1,228,165; 1924, $887,823, and 1925, $1,127,898.

Metal Market Review

New York

Greater activity characterized all the markets, following the settlement of the British strike, tin and copper being especially affected. Lead continued very steady while zinc remained firm at levels which producers claimed were unprofitable. The April production of steel ingots was 4,123,941 tons, according to the American Iron and Steel Institute, as compared with 4,488,362 tons in March, the latter figure representing the largest monthly total in the history of the industry.

ALUMINUM. Virgin metal, 98 to 99 per cent pure, is quoted as ingots at 27 to 28 cents, delivered.

ANTIMONY. The market has been slowly weakening, spot antimony being quoted toward the close of May at 12¼ cents, duty paid, f. o. b. New York.

COPPER. Increased buying followed the announcement on May 12 of the settling of the British strike, but since that time the market has been quieter. There is a steadily increasing demand for this metal, particularly by certain industries, notably the automobile and the radio, while the year 1925 represented a record production and shipment total of 1,500,000 tons. According to the Copper and Brass Research Association, the washing machine industry used in 1925 15,000,000 pounds of copper, as against only 2,000,000 pounds in 1921. The automobile industry also used in 1925 245,000,000 pounds—a record figure.

LEAD. A good business is reported and independent producers are said to be fairly well sold up for May and June shipments. According to figures announced by the American Bureau of Metal Statistics, the crude lead production during April in the United States and Mexico amounted to 70,967 short tons, as compared with 71,648 tons in March.

STEEL. During the four months ended April 30 steel ingot production is said to have aggregated 16,564,548 tons, the highest figure for any four months on record, the annual rate being 49,693,000 tons. In 1925 the annual record production was 44,170,738 tons.

TIN. Statistics as of April 30 show an increase in the world output of tin of 1,236 tons, as compared with a decrease of 1,959 tons in March. Large volumes of this metal are said to have been bought for August delivery, with steady prices maintained.

ZINC. Prices for this metal are said to be now at least $3 a ton above the low level for the year, but conditions remain very quiet. The apparent consumption of primary zinc in the United States amounted in 1925 to 500,147 tons, as compared with 448,257 tons in 1924.

Basic Metals

MAY 22, 1926

	Cents per pound	
Aluminum, virgin, 98@99 per cent	27.00	@
Antimony	11.00	@11.25
Copper—Lake, spot	14.00	@14.25
Electrolytic, spot	13.80	@13.875
Castings, refinery	13.25	@
Lead, spot, New York	7.65	@ 7.70
Lead, spot, East St. Louis	7.45	@ 7.50
Nickel, ingot, pound	35.00	@
Tin, spot	60.50	@
Zinc, spot, New York	7.20	@ 7.225
Zinc, spot, East St. Louis	6.85	@ 6.875

Steel Wire

	Base per 100 lbs.	
Bright, plain wire No. 9 gage	$2.50	@
Annealed fence wire	2.65	@
Galvanized wire No. 9	3.10	@
Spring wire	3.50	@

Copper Wire

BASE PRICE F. O. B. FACTORY

	Cents per pound	
Bare copper wire	16.00	@
No. 6. B. & S. gage	16.00	@
No. 8 B. & S. gage	16.00	@
No. 14 B. & S.	17.00	@

United Kingdom Rubber Statistics

Imports

UNMANUFACTURED Crude Rubber From—	March, 1926 Pounds	March, 1926 Value	Three Months Ended March, 1926 Pounds	Three Months Ended March, 1926 Value
Straits Settlements	12,122,700	£1,454,780	32,312,000	£4,731,438
Federated Malay States	7,659,700	906,511	13,820,700	1,907,981
British India	1,332,500	156,321	3,789,100	568,499
Ceylon and Dependencies	4,451,600	524,699	11,296,300	1,606,877
Other Dutch possessions in Indian Seas	2,124,000	260,989	3,834,300	538,393
Dutch East Indies (except other Dutch possessions in Indian Seas	2,282,700	269,882	6,065,800	853,730
Other countries in East Indies and Pacific, not elsewhere specified	255,600	30,224	588,500	80,157
Brazil	841,300	95,346	3,049,300	449,945
Peru	800	135	800	135
South and Central America (except Brazil and Peru)	37,100	5,710	44,300	6,725
West Africa:				
French West Africa	182,900	9,377	1,032,300	105,895
Gold Coast	106,400	7,241	386,200	31,105
Other parts of West Africa	193,600	19,585	724,900	83,354
East Africa, including Madagascar	168,300	19,884	486,400	61,309
Other countries	91,100	13,803	401,000	62,651
Totals	31,850,300	£3,774,487	77,831,900	£11,088,194
Waste and reclaimed rubber	421,800	£8,024	2,013,700	£39,254
Gutta percha and balata	740,300	110,488	2,646,800	386,913
Rubber substitutes	.....	.....	13,500	487
Totals	1,162,100	£118,512	4,674,000	£426,654
MANUFACTURED				
Boots and shoes....*doz. pairs*	41,581	£84,535	102,662	£210,608
Tires and tubes				
Pneumatic				
Outer covers	.....	617,415	.....	1,440,837
Inner tubes	.....	118,424	.....	202,898
Solid Tires	.....	36,513	.....	82,034
Other rubber manufactures	.....	167,128	.....	440,315
Totals	.....	£1,024,015	.....	£2,376,692

Exports

UNMANUFACTURED RUBBER				
Waste and reclaimed	3,191,700	£38,212	8,229,200	£107,287
Rubber substitutes	89,400	2,646	378,300	8,825
Totals	3,281,100	£40,858	8,607,500	£116,112
MANUFACTURED				
Boots and shoes....*doz. pairs*	20,088	£28,525	52,551	£83,759
Tires and tubes				
Pneumatic				
Outer covers	.....	305,348	.....	819,279
Inner tubes	.....	67,250	.....	175,175
Solid tires	.....	45,585	.....	121,954
Other rubber manufactures	.....	300,232	.....	767,378
Totals	.....	£746,940	.....	£1,967,545

Exports—Colonial and Foreign

UNMANUFACTURED Crude Rubber From—	March, 1926 Pounds	March, 1926 Value	Three Months Ended March, 1926 Pounds	Three Months Ended March, 1926 Value
Russia	1,864,200	£372,637	4,046,900	£770,616
Sweden, Norway and Denmark	249,900	34,116	564,100	84,765
Germany	1,097,500	141,709	2,485,100	380,421
Belgium	268,900	33,466	561,900	85,691
France	2,704,300	365,126	6,242,700	1,014,168
Spain	61,100	10,529	287,200	50,387
Italy	1,186,400	154,375	2,824,000	464,476
Other European countries	108,600	17,702	281,900	49,709
United States	4,306,500	674,199	17,967,600	3,068,966
Canada	.....	.....	29,200	5,396
Other countries	50,900	8,090	188,900	35,095
Totals	11,898,300	£1,811,949	35,479,500	£6,009,690
Waste and reclaimed rubber	32,800	£1,035	75,400	£2,348
Gutta percha and balata	44,400	7,303	103,900	16,509
Rubber substitutes	.....	.....	.....	.....
Totals	77,200	£8,338	179,300	£18,857
MANUFACTURED				
Boots and shoes....*doz. pairs*	344	£994	1,112	£4,100
Tires and tubes				
Pneumatic				
Outer covers	.....	36,882	.....	86,867
Inner tubes	.....	7,305	.....	15,117
Solid tires	.....	1,500	.....	3,375
Other rubber manufactures	.....	7,351	.....	16,946
Totals	.....	£54,032	.....	£126,405

Dominion of Canada Rubber Statistics

Imports of Crude and Manufactured Rubber

UNMANUFACTURED	February, 1926 Pounds	February, 1926 Value	Eleven Months Ended February, 1926 Pounds	Eleven Months Ended February, 1926 Value
Rubber, gutta percha, etc.				
From United Kingdom	37,994	$16,717	2,513,582	$1,301,130
United States	3,415,408	2,518,166	32,947,648	23,360,930
Straits Settlements	526,589	477,595	5,163,141	3,220,788
Dutch East Indies	179,573	159,740	1,300,314	984,610
France	18,000	9,634	69,008	35,637
Other countries	.....	.....	161,383	90,817
Totals	4,177,564	$3,181,852	42,155,076	$28,993,912
Rubber, recovered	559,741	$68,174	7,033,877	$876,151
Rubber, powdered and rubber or gutta percha scrap	493,762	36,707	4,854,083	303,239
Balata	647	559	2,437	2,064
Rubber substitutes	38,952	4,177	662,084	100,292
Totals	1,093,102	$109,617	12,552,481	$1,281,746
PARTLY MANUFACTURED				
Hard rubber sheets and rods	11,049	$7,007	257,454	$184,918
Hard rubber tubes	.....	321	.....	1,336
Rubber thread not covered	11,826	18,480	130,588	149,198
Totals	22,875	$25,808	388,042	$335,452
MANUFACTURED				
Belting	.....	$28,932	.....	$223,731
Hose	.....	10,644	.....	147,912
Packing	.....	8,792	.....	46,219
Boots and shoes.....*pairs*	645	686	53,113	84,794
Clothing, including waterproofed	.....	20,687	.....	164,267
Gloves	.....	1,413	.....	15,078
Hot water bottles	.....	980	.....	18,946
Tires, solid .....*number*	25	2,118	969	37,223
Tires, pneumatic.....*number*	4,134	26,370	28,835	415,625
Tires, tubes .....*number*	2,984	5,458	20,087	52,805
Elastic, round or flat	.....	19,774	.....	196,889
Mats and matting	.....	2,972	.....	20,243
Cement	.....	7,865	.....	52,510
Golf balls .....*dozen*	1,612	4,957	27,850	114,496
Heels, rubber .....*pairs*	11,529	953	148,461	10,623
Other rubber manufactures	.....	111,990	.....	1,343,394
Totals	.....	$254,591	.....	$2,944,755
Totals, rubber imports	.....	$3,571,868	.....	$33,555,865

Exports of Domestic and Foreign Rubber Goods

UNMANUFACTURED	February, 1926 Produce of Canada Value	February, 1926 Re-exports of Foreign Goods Value	Eleven Months Ended February, 1926 Produce of Canada Value	Eleven Months Ended February, 1926 Re-exports of Foreign Goods Value
Crude and waste rubber	$27,406	.....	$388,864	.....
Totals	$27,406	.....	$388,864	.....
MANUFACTURED				
Belting	$47,864	.....	$559,848	.....
Canvas shoes with rubber soles	213,834	.....	2,332,530	.....
Boots and shoes	219,474	.....	1,890,476	.....
Clothing, including waterproofed	2,336	.....	39,509	.....
Hose	12,806	.....	205,043	.....
Tires, casings	1,132,691	.....	9,617,962	.....
Inner tubes	231,089	.....	1,746,504	.....
Solid	31,814	.....	237,680	.....
Other rubber manufactures	35,143	$1,073	415,000	$131,895
Totals	$1,927,051	$1,073	$17,044,552	$131,895
Totals, rubber exports	$1,954,457	$1,073	$17,433,416	$131,895

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of March, 1926

	Landed for March Tons	Delivered for March Tons	Stocks, March 31 1926 Tons	Stocks, March 31 1925 Tons	Stocks, March 31 1924 Tons
LONDON:					
Plantation	9,133	6,023	12,973	17,958	55,327
Other grades	34	16	110	*60	101
LIVERPOOL:					
Plantation	†571	†235	†986	†1,705	†5,112
Pará and Peruvian	200	180	337	133	585
Other grades	...	6	2	35	210
Total tons London and Liverpool	9,938	6,460	14,408	19,891	61,335

† Official returns from the six recognized public warehouses.
* Corrected by inspection.

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	March, 1926		Nine Months Ended March, 1926	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	94,421,359	$70,589,581	722,155,116	$483,428,355
Balata	41,290	17,696	1,115,344	537,279
Jelutong or Pontianak	1,659,531	323,003	10,481,664	1,448,382
Gutta percha	232,120	39,249	2,826,136	540,293
Guayule	1,173,909	318,540	7,794,902	2,002,862
Rubber scrap	4,235,575	215,816	30,738,059	1,244,899
Total	101,763,784	$71,503,885	775,111,221	$489,202,070
Chicle ...*dutiable*	1,670,710	$840,033	9,366,689	$4,652,171
MANUFACTURED—*dutiable*				
Rubber belting	78,298	$52,500	556,075	$401,172
Rubber tires	131	2,103	[1]1,191	[1]20,174
Other rubber manufactures of substitutes for rubber	.....	106,538	.....	1,091,663
Totals	78,429	$161,141	557,266	$1,513,009

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber	4,112,424	$2,735,234	29,478,449	$21,852,686
Balata	107,822	59,038	439,864	237,066
Gutta percha and rubber substitutes and scrap	100	69	46,486	12,287
Rubber manufactures	.....	2,741	.....	172,278
Totals	.....	$2,797,082	.....	$22,274,317

Exports of Domestic Merchandise

MANUFACTURED				
India rubber				
Reclaimed	981,424	$117,005	8,415,669	$1,028,372
Scrap and old	2,174,222	124,099	19,708,908	1,315,012
Footwear				
Boots ...*pairs*	34,234	88,659	706,217	1,659,334
Shoes ...*pairs*	91,203	82,642	996,934	883,671
Canvas shoes with rubber soles ...*pairs*	466,281	383,440	3,483,222	2,595,158
Rubber water bottles and fountain syringes...*number*	20,976	14,507	228,507	168,675
Rubber gloves...*doz. prs.*	6,196	25,176	[1]15,092	[1]58,869
Other druggists' rubber sundries	.....	47,688	.....	837,274
Bathing caps ...*dozen*	30,544	69,489	116,482	241,915
Hard rubber goods				
Electrical hard rubber goods	46,839	15,923	813,194	278,689
Other hard rubber goods	.....	21,797	.....	354,959
Tires				
Casings, automobile...*number*	129,232	2,439,322	1,210,994	18,137,510
Tubes, automobile...*number*	98,640	288,002	1,034,265	2,550,136
Other casings and tubes ...*number*	4,692	19,914	57,796	189,453
Solid tires for automobiles and motor trucks ...*number*	14,044	427,976	90,310	2,848,416
Others	135,208	48,164	1,626,488	454,456
Tire accessories	.....	177,336	.....	1,037,845
Rubber and friction tape	69,315	23,569	[1]161,087	[1]54,986
Belting	448,249	309,727	3,188,174	1,980,749
Hose	636,054	266,403	4,290,136	1,745,922
Packing	200,531	110,321	1,654,266	793,278
Soles and heels	297,724	102,715	2,813,179	905,274
Thread	112,867	161,241	1,407,914	1,798,467
Rubber bands and erasers	50,578	40,648	[1]127,302	[1]102,465
Other rubber manufactures	.....	213,673	.....	1,628,638
Totals	.....	$5,619,436	.....	$43,649,523
Rubber toys, balls and balloons	.....	$76,974	.....	$821,221

[1]Beginning Jan. 1, 1926.

Imports of Crude Rubber Into the United States by Customs Districts

	*March, 1926		Three Months Ended *March, 1926	
	Pounds	Value	Pounds	Value
Massachusetts	3,449,617	$2,511,658	12,963,056	$10,219,287
Buffalo	.....	.....	30,000	12,600
New York	89,237,558	66,739,999	243,330,114	186,222,770
Philadelphia	.....	.....	.....	.....
Maryland	.....	.....	.....	.....
New Orleans	436	431	1,233	642
Los Angeles	1,381,842	1,095,005	5,362,021	4,349,771
San Francisco	136,185	105,966	394,719	314,167
Colorado	.....	.....	168,000	145,636
Oregon	33,600	21,727	56,000	51,642
Washington	179,200	112,896	716,800	541,688
Michigan	2,921	1,899	2,921	1,899
Totals	94,421,359	$70,589,581	263,024,864	$201,860,102

* Including Latex Dry Rubber Content.

Plantation Rubber Exports from Dutch East Indies

Java and Madura

	December		Twelve Months Ended December	
To—	1924 Kilos	1925 Kilos	1924 Kilos	1925 Kilos
Holland	150,000	148,000	2,275,000	2,002,000
Holland for order	180,000	198,000	1,160,000	2,295,000
Great Britain	709,000	679,000	6,977,000	7,688,000
Great Britain for order	.....	41,000	81,000	489,000
Germany and for order	47,000	51,000	406,000	1,418,000
France and for order	6,000	153,000	259,000	847,000
Belgium and for order	.....	8,000	25,000	199,000
Italy and for order	27,000	52,000	365,000	716,000
Sweden	.....	.....	.....	3,000
United States and for order	3,132,000	2,491,000	27,966,000	28,682,000
South America	.....	.....	.....	202,000
Singapore	445,000	222,000	2,831,000	1,761,000
Hongkong	.....	5,000	27,000	36,000
Japan	.....	1,000	754,000	72,000
Australia	4,000	136,000	251,000	944,000
Other countries	9,000	.....	13,000	3,000
Totals	4,709,000	4,185,000	43,390,000	47,357,000
Ports of Origin:				
Tandjong-Priok	1,708,000	1,771,000	16,624,000	19,990,000
Cheribon	.....	16,000	73,000	63,000
Samarang	269,000	257,000	3,049,000	3,350,000
Sourabaya	2,239,000	1,493,000	17,546,000	16,951,000
Pasuruan	84,000	117,000	1,311,000	1,214,000
Probolinggo	75,000	112,000	1,280,000	983,000
Panarukan	128,000	172,000	1,463,000	2,116,000
Banjuwangi	73,000	118,000	925,000	1,128,000
Tjilatjap	133,000	128,000	1,118,000	1,545,000

Belawan

	December		Twelve Months Ended December	
To—	1924 Kilos	1925 Kilos	1924 Kilos	1925 Kilos
Holland	123,000	144,000	1,697,000	2,020,000
Great Britain	701,000	686,000	5,601,000	7,645,000
Germany	63,000	41,000	474,000	535,000
France	8,000	117,000	256,000	642,000
Italy	.....	29,000	222,000	439,000
Belgium	.....	.....	27,000	14,000
United States	2,782,000	2,968,000	30,391,000	23,835,000
Canada	.....	.....	.....	9,000
South Africa	.....	.....	.....	14,000
Singapore	100,000	153,000	952,000	1,107,000
Penang	140,000	132,000	1,097,000	2,072,000
Hongkong	.....	.....	.....	10,000
Australia	10,000	15,000	34,000	125,000
Other countries	12,000	.....	142,000	.....
Totals	3,939,000	4,285,000	40,893,000	38,467,000

United States Crude and Waste Rubber Imports for 1926 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Maniçobas and Matto Grosso	Total 1926	Total 1925	Balata	Miscellaneous	Waste
January ...*tons*	36,372	856	791	515	153	10	38,697	29,960	94	607	1,227
February	31,832	1,548	227	250	204	6	34,067	23,456	19	728	729
March	40,177	1,426	334	256	482	2	42,677	33,914	30	1,264	324
April	30,766	854	164	392	494	8	32,678	27,231	35	864	216
Totals, 4 months, 1926...*tons*	139,147	4,684	1,516	1,413	1,333	26	148,119	.....	178	3,463	2,496
Totals, 4 months, 1925	106,690	5,265	1,064	661	865	16	.....	114,561	133	4,379	876

Compiled from statistics supplied by the Rubber Association of America, Inc.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
APRIL 10. By "Justin," Para.					
H. A. Astlett & Co., Inc	39	3	14	4	...
APRIL 15. By "Pan American," Uruguay.					
Paul Bertuch & Co., Inc	218	...	...	...	...
APRIL 22. By "Cape Camorin," Para.					
H. A. Astlett & Co., Inc	155	...	...	...	...
General Rubber Co	282	10	18	25	...
Meyer & Brown, Inc	61	...	16	35	...
Meyer & Brown, Inc. *fells*	650	...	...	...	...
APRIL 23. By "Southern Cross," Uruguay.					
Paul Bertuch & Co., Inc	99	...	...	...	...
MAY 1. By "Denis," Manaos.					
H. A. Astlett & Co., Inc	82	...	8	4	...
General Rubber Co	349	19	288	130	...
L. Littlejohn & Co., Inc	...	...	87	194	...
Meyer & Brown, Inc	159	...	34	...	...
Poel & Kelly, Inc	197	1	54	488	...
MAY 5. By "Bronte," Para.					
H. A. Astlett & Co., Inc	19	...	...	...	...
Meyer & Brown, Inc. *felles*	113	...	191 *bbls.*	88	18
MAY 13. By "Swinburne," Brazil.					
General Rubber Co	116	4	275	327	...
L. Littlejohn & Co., Inc	761	...	103	263	...
Meyer & Brown, Inc	258	...	90	39	...
Poel & Kelly, Inc	141	...	224	522	...

Plantations

	Cases
APRIL 16. By "Grace Dollar," Far East.	
Poel & Kelly, Inc	†137
APRIL 16. By "Malakuta," Far East.	
Meyer & Brown, Inc. pkgs.	842
Poel & Kelly, Inc	235
Raw Products Co	330
APRIL 17. By "Corby Castle," Far East.	
H. A. Astlett & Co., Inc	801
Baird Rubber & Trading Co., Inc. pkgs.	810
General Rubber Co	6,220
Haldane Bierrie & Co., Inc	197
L. Littlejohn & Co., Inc	5,173
Meyer & Brown, Inc. pkgs.	4,219
H. Muehlstein & Co., Inc	660
Poel & Kelly, Inc	3,109
Poel & Kelly, Inc	*100
Raw Products Co	214
Charles T. Wilson Co., Inc	150
APRIL 17. By "Furyades," Far East.	
H. A. Astlett & Co., Inc	483
General Rubber Co	8,484
Hood Rubber Co	*132
L. Littlejohn & Co., Inc	1,874
Meyer & Brown, Inc. pkgs.	1,919
Meyer & Brown, Inc. pkgs.	*92
Poel & Kelly, Inc	1,705
Raw Products Co	168
APRIL 18. By "Steel Traveller," Far East.	
H. A. Astlett & Co., Inc	1,302
Baird Rubber & Trading Co., Inc. pkgs.	1,197
General Rubber Co	4,549
Haldane Bierrie & Co., Inc	150
Hood Rubber Co	*96
L. Littlejohn & Co., Inc	2,810
Meyer & Brown, Inc. pkgs.	3,379
H. Muehlstein & Co., Inc	400
Poel & Kelly, Inc	†1,384
Raw Products Co	469
Charles T. Wilson Co., Inc	156
APRIL 19. By "Westerner," Rotterdam.	
Hood Rubber Co	*415
APRIL 20. By "American Farmer," London.	
Baird Rubber & Trading Co., Inc. pkgs.	64
APRIL 20. By "Hamburg," Hamburg.	
Baird Rubber & Trading Co., Inc. pkgs.	56
APRIL 20. By "American Trader," Europe.	
Meyer & Brown, Inc. pkgs.	109
APRIL 20. By "Minnetonka," London.	
H. A. Astlett & Co., Inc	110
General Rubber Co	390
L. Littlejohn & Co., Inc	2,308
APRIL 20. By "Oanfa," Far East.	
H. A. Astlett & Co., Inc	1,464
Baird Rubber & Trading Co., Inc. pkgs.	1,030
Paul Bertuch & Co., Inc	271
General Rubber Co	6,185
Haldane Bierrie & Co., Inc	674
L. Littlejohn & Co., Inc	4,178
Meyer & Brown, Inc. pkgs.	2,673
Meyer & Brown, Inc. pkgs.	*50
H. Muehlstein & Co., Inc	48
Poel & Kelly, Inc	3,235
Poel & Kelly, Inc	*50
Raw Products Co	1,092
Charles T. Wilson Co., Inc	346
APRIL 21. By "France," Havre.	
H. A. Astlett & Co., Inc	103
APRIL 21. By "Slavic Prince," Far East.	
H. A. Astlett & Co., Inc	1,636
Baird Rubber & Trading Co., Inc. pkgs.	1,673
Paul Bertuch & Co., Inc	62
General Rubber Co	3,507
Haldane Bierrie & Co., Inc	350
Hood Rubber Co	*633
L. Littlejohn & Co., Inc	6,394
Meyer & Brown, Inc. pkgs.	4,188
H. Muehlstein & Co., Inc	410
Poel & Kelly, Inc	2,348
Raw Products Co	208
Charles T. Wilson, Inc	975
APRIL 24. By "City of Pittsburgh," Far East.	
H. A. Astlett & Co., Inc	116
L. Littlejohn & Co., Inc	38
Meyer & Brown, Inc. pkgs.	164
Poel & Kelly, Inc	75
APRIL 24. By "Mahout," Far East.	
General Rubber Co	2,257
L. Littlejohn & Co., Inc	160
Meyer & Brown, Inc. pkgs.	1,831
Meyer & Brown, Inc. pkgs.	*330
H. Muehlstein & Co., Inc	722
Raw Products Co	330
APRIL 24. By "Rotterdam," Rotterdam.	
Haldane Bierrie & Co., Inc	246
L. Littlejohn & Co., Inc	100
Meyer & Brown, Inc. pkgs.	170
Poel & Kelly, Inc	10
Raw Products Co	53
APRIL 26. By "Norfolk Maru," Far East.	
H. A. Astlett & Co., Inc	628
General Rubber Co	2,916
L. Littlejohn & Co., Inc	1,034
Meyer & Brown, Inc. pkgs.	956
Poel & Kelly, Inc	1,197
APRIL 27. By "Carenia," Liverpool.	
Poel & Kelly, Inc	77
APRIL 27. By "Minnekahda," London.	
H. A. Astlett & Co., Inc	290
Baird Rubber & Trading Co., Inc. Pkgs.	50
General Rubber Co	324
L. Littlejohn & Co., Inc	2,880
Meyer & Brown, Inc. pkgs.	114
Poel & Kelly, Inc	854
APRIL 28. By "Kumeric," Far East.	
H. A. Astlett & Co., Inc	20
General Rubber Co	3,655
Hood Rubber Co	*374
L. Littlejohn & Co., Inc	1,597
Meyer & Brown, Inc. pkgs.	90
Poel & Kelly, Inc	788
Charles T. Wilson Co., Inc	122
APRIL 28. By "Westphalia," Hamburg.	
Baird Rubber & Trading Co., Inc. pkgs.	40
Poel & Kelly, Inc	394
APRIL 30. By "Malvernian," Far East.	
H. A. Astlett & Co., Inc	969
Baird Rubber & Trading Co., Inc. pkgs.	1,323
General Rubber Co	1,878
Haldane Bierrie & Co., Inc	500
L. Littlejohn & Co., Inc	5,603
Meyer & Brown, Inc. pkgs.	4,823
H. Muehlstein & Co., Inc	1,285
Poel & Kelly, Inc	1,776
Raw Products Co	549
Charles T. Wilson Co., Inc	534
MAY 1. By "Belton Castle," Far East.	
H. A. Astlett & Co., Inc	1,536
Baird Rubber & Trading Co., Inc. pkgs.	1,309
General Rubber Co	8,454
Haldane Bierrie & Co., Inc	350
Hood Rubber Co	*557
L. Littlejohn & Co., Inc	3,003
Meyer & Brown, Inc. pkgs.	2,815
H. Muehlstein & Co., Inc	716
Poel & Kelly, Inc	2,485
Charles T. Wilson Co., Inc	403
MAY 3. By "Albert Ballin," Hamburg.	
Baird Rubber & Trading Co., Inc. pkgs	56
MAY 3. By "Clan Matheson," Far East.	
H. A. Astlett & Co., Inc	11
General Rubber Co	3,403
L. Littlejohn & Co., Inc	73
Poel & Kelly, Inc	75
MAY 3. By "Minnewaska," London.	
H. A. Astlett & Co., Inc	154
Baird Rubber & Trading Co., Inc. pkgs	52
General Rubber Co	388
Haldane Bierrie & Co., Inc	405
L. Littlejohn & Co., Inc	329
Poel & Kelly, Inc	45
Charles T. Wilson Co., Inc	155
MAY 5. By "Myrtlebank," Far East.	
H. A. Astlett & Co., Inc	787
General Rubber Co	125
Hood Rubber Co	*125
L. Littlejohn & Co., Inc	252
Meyer & Brown, Inc. pkgs.	842
H. Muehlstein & Co., Inc	122
Poel & Kelly, Inc	298
Charles T. Wilson Co., Inc	324
MAY 5. By "West Chopaka," Far East.	
H. A. Astlett & Co., Inc	†144
Baird Rubber & Trading Co., Inc. pkgs.	†507
MAY 6. By "Pres. Monroe," Far East.	
H. A. Astlett & Co., Inc	436
Baird Rubber & Trading Co., Inc. pkgs.	1,126
General Rubber Co	2,401
Haldane Bierrie & Co., Inc	150
Hood Rubber Co	*1,062
L. Littlejohn & Co., Inc	990
Meyer & Brown, Inc. pkgs.	3,390
Meyer & Brown, Inc. pkgs.	*240
L. Muehlstein & Co., Inc	900
H. Muehlstein & Co., Inc	562
Poel & Kelly, Inc	2,014
Charles T. Wilson Co., Inc	443
MAY 8. By "Roussillon," Far East.	
H. Muehlstein & Co., Inc	102
MAY 8. By "Volendam," Rotterdam.	
General Rubber Co	166
Haldane Bierrie & Co., Inc	102
Poel & Kelly, Inc	45
MAY 10. By "American Shipper," London.	
General Rubber Co	2,484
Charles T. Wilson Co., Inc	319
MAY 10. By "Neleus," Far East.	
Baird Rubber & Trading Co., Inc. pkgs.	421
General Rubber Co	1,482
L. Littlejohn & Co., Inc	1,219
Meyer & Brown, Inc. pkgs.	1,737
Meyer & Brown, Inc. pkgs.	*108
Poel & Kelly, Inc	1,860
Poel & Kelly, Inc	*650
MAY 10. By "Pres. Cleveland," Far East.	
H. A. Astlett & Co., Inc	†150
MAY 10. By "Samaria," Liverpool.	
Poel & Kelly, Inc	93
MAY 10. By "Veendyk," Far East.	
H. A. Astlett & Co., Inc	1,128
Baird Rubber & Trading Co., Inc. pkgs.	687
Bowring & Co	50
General Rubber Co	6,638
L. Littlejohn & Co., Inc	3,386
Meyer & Brown, Inc. pkgs.	2,781
H. Muehlstein & Co., Inc	410
Poel & Kelly, Inc	2,575
Charles T. Wilson Co., Inc	327
MAY 11. By "Port Albany," London.	
Baird Rubber & Trading Co., Inc. pkgs.	97
General Rubber Co	2,675
L. Littlejohn & Co., Inc	583
Meyer & Brown, Inc. pkgs.	50
MAY 12. By "City of Christiania," Far East.	
H. A. Astlett & Co., Inc	1,259
Baird Rubber & Trading Co., Inc. pkgs.	584
General Rubber Co	1,720
Haldane Bierrie & Co., Inc	640
Hood Rubber Co	*96
L. Littlejohn & Co., Inc	2,446
Meyer & Brown, Inc. pkgs.	4,215
H. Muehlstein & Co., Inc	447
Poel & Kelly, Inc	1,123
Rogers Brown & Crocker Bros., Inc	75
Charles T. Wilson Co., Inc	783
MAY 13. By "Silvercedar," Far East.	
Baird Rubber & Trading Co., Inc. pkgs.	620
L. Littlejohn & Co., Inc	906
Meyer & Brown, Inc. pkgs.	590
H. Muehlstein & Co., Inc	880
Poel & Kelly, Inc	227
MAY 14. By "Knight Companion," Far East.	
Bowring & Co	10
L. Littlejohn & Co., Inc	1,890
H. Muehlstein & Co., Inc	190
MAY 14. By "Mahsud," Far East.	
Baird Rubber & Trading Co., Inc. pkgs.	330
Baird Rubber & Trading Co., Inc. pkgs.	*132
General Rubber Co	1,016
L. Littlejohn & Co., Inc	320
Meyer & Brown, Inc. pkgs.	665
H. Muehlstein & Co., Inc	826
MAY 15. By "Nieuw Amsterdam," Europe.	
L. Littlejohn & Co., Inc	171
MAY 17. By "Comeric," Far East.	
Rogers Brown & Crocker Bros., Inc	150
MAY 22. By "Jason," Far East.	
Bowring & Co	140

* Arrived at Boston.
† Arrived at Los Angeles.

Penang Sheet

	Cases
APRIL 15. By "Blydendijk," Antwerp.	
Hood Rubber Co.	*283
APRIL 17. By "Euryades," Far East.	
Hood Rubber Co.	*53
MAY 13. By "Veendyk," Far East.	
Hood Rubber Co.	*106
MAY 15. By "Nitonican," Far East.	
Hood Rubber Co.	*1,142

Rubber Latex

	Gallons
APRIL 18. By "Steel Traveller," Far East.	
General Rubber Co.	66,898
APRIL 27. By "Scottsburg," Far East.	
General Rubber Co.	94,042
MAY 1. By "Bolton Castle," Far East.	
General Rubber Co.	180,406
MAY 10. By "Veendyk," Far East.	
General Rubber Co.	38,110

*Arrived at Boston.
‡Arrived at Laredo, Texas.

Maniçobas

APRIL 22. By "Cape Camorin," Brazil.	
General Rubber Co.	
APRIL 24. By "Bakersfield," Far East.	
Adolph Hirsch & Co., Inc.	
APRIL 30. By "Denis," Brazil.	
General Rubber Co.	
MAY 13. By "Swinburne," Brazil.	
General Rubber Co.	

Africans

MAY 2. By "Carmania," Europe.	
L. Littlejohn & Co., Inc.	
MAY 5. By "Pres. Monroe," Far East.	
Poel & Kelly, Inc.	bbls.
MAY 5. By "Sweden Maru," Europe.	
L. Littlejohn & Co., Inc.	

Balata

APRIL 30. By "Denis," Brazil.	
General Rubber Co.	
MAY 13. By "Swinburne," Brazil.	
General Rubber Co.	

Guayule

Cases		Cases
	APRIL 14. By "Railway," Mexico.	
1	Continental Rubber Co. of New York	§800
	APRIL 17. By "Railway," Mexico.	
58	Continental Rubber Co. of New York	§1,044
	APRIL 22. By "Railway," Mexico.	
15	Continental Rubber Co. of New York	§560
	APRIL 23. By "Ada Gorthon," Mexico.	
3	Continental Rubber Co. of New York	960
	APRIL 24. By "Canto," Mexico.	
	Continental Rubber Co. of New York	560
	APRIL 27. By "Railway," Mexico.	
Cases	Continental Rubber Co. of New York	§500
	APRIL 28. By "Railway," Mexico.	
64	Continental Rubber Co. of New York	§560
	MAY 3. By "Agwistar," Mexico.	
90	Continental Rubber Co. of New York	1,120
	MAY 3. By "Railway," Mexico.	
291	Continental Rubber Co. of New York	§1,060
	MAY 8. By "Panuco," Mexico.	
	Continental Rubber Co. of New York	567
	MAY 8. By "Railway," Mexico.	
Cases	Continental Rubber Co. of New York	§500
	MAY 12. By "Railway," Mexico.	
31	Continental Rubber Co. of New York	§560
	MAY 20. By "Camaguey," Mexico.	
31	Continental Rubber Co. of New York	1,120

Inventory—Production—Shipments of Pneumatic Casings—Inner Tubes—Solid Tires—Rubber and Fabric Consumption

	High Pressure Pneumatic Casings						Balloon Casings			Solid and Cushion Tires		
	Cord			Fabric								
	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments
Twelve mos. 1925.	3,723,296	23,631,807	22,685,933	607,681	6,433,865	7,211,608	1,775,428	15.567,644	14,628,137	148,080	758,900	800,395
1926												
January	4,453,490	1,621,383	1,045,302	810,883	402,784	184,951	2,195,922	1,416,409	1,000,490	170,674	57,928	34,361
February	4,907,181	1,796,189	1,187,990	978,152	254,537	103,127	2,487,498	1,598,246	1,285,999	196,477	59,318	29,629
March	5,159,199	1,840,268	1,526,416	1,217,416	396,746	218,490	2,626,745	1,855,022	1,676,170	218,991	57,218	37,369

	High Pressure Inner Tubes			Balloon Inner Tubes		
	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments
Twelve mos. 1925.	6,489,331	45,864,008	45,887,316	1,995,277	16,096,518	14,856,699
1926						
January	8,297,117	3,537,722	1,706,680	2,473,366	1,569,248	1,085,352
February	9,966,723	3,316,739	1,568,305	2,850,865	1,801,922	1,233,663
March	11,106,395	3,076,338	1,936,927	3,241,677	2,196,118	1,803,394

*As of December 31, 1925. *Compiled from Rubber Association figures.*

	Cotton and Rubber Consumption in casings, tubes, solid and cushion tires	
	Cotton Fabric Pounds	Crude Rubber Pounds
Twelve mos. 1925	168,295,927	552,389,272
1926		
January	13,197,979	44,527,984
February	13,250,686	43,160,777
March	14,197,612	45,497,208

Statistics Compiled from 1926 Questionnaire Covering the First Quarter of 1926[1]

	Long Tons		
	Inventory at End of Quarter	Production	Shipments
RECLAIMED RUBBER			
Reclaimers solely (8)	1,962	26,306	25,719
Manufacturers who also reclaim (20)	5,936	17,786	4,294
Other manufacturers (67)	6,379	.....	.....
Totals	13,377	44,092	30,013

	Long Tons		
	Inventory at End of Quarter	Consumption in Manufacture Reclaimed	Due on Contract at End of Quarter
SCRAP RUBBER			
Reclaimers solely (8)	44,297	33,557	10,481
Manufacturers who also reclaim (19)	37,189	18,287	7,141
Other manufacturers (23)	4,107	593	8
Totals	85,593	52,437	17,630

NUMBER OF TONS OF CRUDE RUBBER CONSUMED IN THE MANUFACTURE OF RUBBER PRODUCTS AND TOTAL SALES VALUE OF SHIPMENTS OF MANUFACTURED RUBBER PRODUCTS

PRODUCTS	Number of Tons of Crude Rubber Used	Total Sales Value of Shipments of Manufactured Rubber Products
Tires and Tire Sundries:		
Automobile and motor truck pneumatic casings	53,891	$142,063,000
Automobile and motor truck pneumatic tubes	13,683	24,999,000
Motorcycle tires (casings and tubes)	33	478,000
Bicycle tires (single tubes, casings and tubes)	244	730,000
All other pneumatic casings and tubes, not elsewhere specified	.....	108,000
Solid tires for motor vehicles	4,305	7,365,000
All other solid tires	104	156,000
Tire sundries and repair materials	821	4,934,000
Totals	73,081	$180,833,000

PRODUCTS	Number of Tons of Crude Rubber Used	Total Sales Value of Shipments of Manufactured Rubber Products
Other Rubber Products:		
Mechanical rubber goods	4,073	$26,791,000
Boots and shoes	3,826	20,463,000
Insulated wire and insulating compounds	991	8,744,000
Druggists' sundries, medical and surgical rubber goods	599	3,343,000
Waterproof cloth, clothing and rubber sheeting	602	5,018,000
Hard rubber goods	431	3,056,000
Heels and soles	1,605	5,571,000
Rubber flooring	236	966,000
Miscellaneous, not included in any of the above items	1,313	6,112,000
Totals	13,676	$80,064,000
Grand totals—all products	86,757	$260,897,000

INVENTORY OF CRUDE RUBBER IN THE UNITED STATES AND AFLOAT FOR UNITED STATES PORTS

	Long Tons			
ON HAND	Plantation	Pará	All Other	Totals
Manufacturers	43,711	2,234	2,356	48,301
Importers and dealers	8,314	994	582	9,890
Totals on hand	52,025	3,228	2,938	58,191
AFLOAT				
Manufacturers	18,031	240	40	18,311
Importers and dealers	24,590	158	105	24,893
Totals afloat	42,621	438	145	43,204

[1] Number of rubber manufacturers that reported data was 198; crude rubber importers and dealers, 52; reclaimers (solely), 8; total daily average number of employes on basis of third week of October, 1925, was 151,942.
It is estimated that the crude rubber consumption figures are 92 per cent of the total, and the crude rubber inventory 95 per cent of the total for the entire industry.

INDIA RUBBER WORLD
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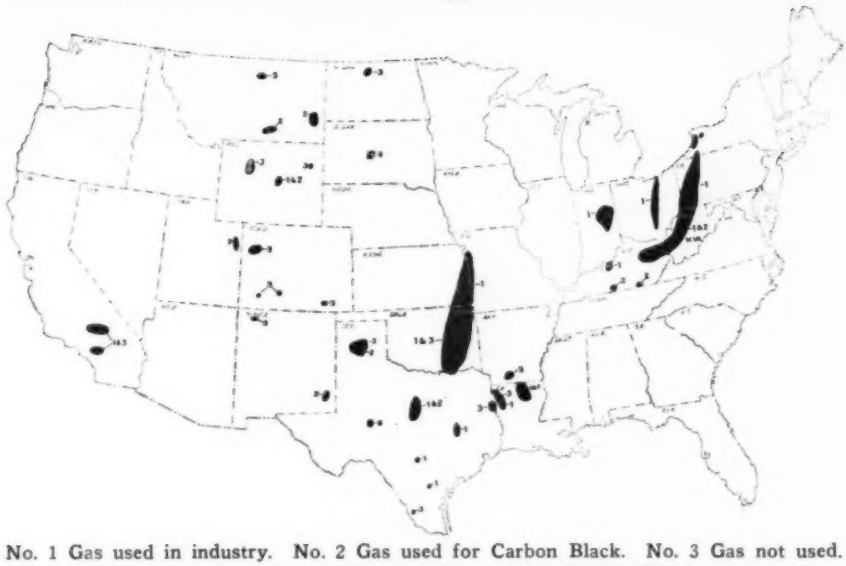
A Carbon Black Famine is Not Likely to Occur



No. 1 Gas used in industry. No. 2 Gas used for Carbon Black. No. 3 Gas not used.
Nos. 1 & 2 Gas used in industry and for Carbon Black.

THIS map shows roughly the known gas producing areas of the United States, and tells its own story.

After forty years of active experience in both the production of natural gas and the selection of sites for Carbon Black plants, we know how to locate new plants in areas which promise low production cost and uninterrupted operation.

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Our Publicity Page

Insulation Glossary Greeted

THE announcement that *The India Rubber World* would publish a Glossary of Insulation has caused considerable stir in the electrical industry, eliciting from manufacturers, dealers, and consumers numerous letters commending this journal for its enterprise in seeking to supply a need which has been long felt by the entire trade. Some of the sentiments expressed are:

"We wish you much success in your new undertaking. Count upon us for cooperation in every way." "The prospect of getting the many confusing definitions in our industry checked up and even approximately clarified is very gratifying."

"Welcome to a lexicon for the insulated wire and allied trades. We certainly need some authority such as your journal to help us get our bearings in a maze of terms so often inexact or conflicting."

"Hope that the glossary will be more correct and comprehensive than a similar publication issued by the Government a few years ago."

The Glossary's Purpose

To the many who have given encouragement, and to those who prefer to wait until some instalments are published before giving an opinion, it may be said that the primary object of the Glossary is to collect, define, and classify every significant term pertaining to electrical insulation.

The India Rubber World realizes that the task is no small one and that "100 per cent correct" is a hard goal to score, yet in striving for that objective if it but adds considerably to its readers' stock of information and helps to clear up some misunderstandings we will deem the effort well worth while.

It is strange but true that there is much dispute as to the meaning of even such simple terms as "wire" and "strand." Some contend that the first can be singular only and the second plural, yet others regard the terms as identical. A pair of conductors made up with wires flat or parallel and overlaid with braid or tape are called by some a duplex conductor; others declare this incorrect and say that it should be called a twin conductor. When in a double conductor the wires are wound spirally together it is termed a twin by some and a duplex conductor by others.

Customers' Orders Perplex

Because of lack of agreement on definitions, many manufacturers are often much puzzled in trying to fill orders. Buyers who want a double conductor will order a duplex when they really mean a twin type. A wire maker may take a chance and guess a customer's order aright; or he may make a wrong guess and have the goods returned. Even a loss may be sustained to either side by delay through correspondence regarding proper description of the goods.

For the benefit of all concerned, an endeavor should be made to compose all such differences, and one of the best ways to accomplish this end, to expedite business, and to promote standardization and simplification is to make the terms so explicit there can be no doubt as to their meaning.

While aiming to give precise and succinct definition to a host of new and old terms, the glossary will incidentally impart much curious and valuable information concerning the art and science of electrical insulation interesting to general readers as well as to technicians.

Baird Rubber & Trading Co.
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